Multi-Hazard Mitigation Plan

Menard County

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Menard County, Illinois

Adoption Date: -- _____ --

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Section 1 - Public Planning Process

1.1 Narrative Description

Hazard mitigation is defined as any sustained action to reduce or eliminate long-term risk to human life and property from hazards. The Federal Emergency Management Agency (FEMA) has made reducing hazards one of its primary goals; hazard mitigation planning and the subsequent implementation of resulting projects, measures, and policies is a primary mechanism in achieving FEMA's goal.

The Multi-Hazard Mitigation Plan (MHMP) is a requirement of the Federal Disaster Mitigation Act of 2000 (DMA 2000). The development of a local government plan is required in order to maintain eligibility for certain federal disaster assistance and hazard mitigation funding programs. In order for the National Flood Insurance Program (NFIP) communities to be eligible for future mitigation funds, they must adopt an MHMP.

In recognition of the importance of planning in mitigation activities, FEMA created **Ha**zards **US**A **M**ulti-**H**azard (HAZUS-MH), a powerful geographic information system (GIS)-based disaster risk assessment tool. This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses. Southern Illinois University at Carbondale (SIUC) and The Polis Center (Polis) at Indiana University Purdue University Indianapolis (IUPUI) are assisting Menard County with performing the hazard risk assessment.

1.2 Planning Team Information

The Menard County Multi-Hazard Mitigation Planning Team is headed by Larry Graff, who is the primary point of contact. Members of the planning team include representatives from various county departments, cities and towns, and public and private utilities. Table 1-1 identifies the planning team individuals and the organizations they represent.

Table 1-1: Multi Hazard Mitigation Planning Team Members

Name	Title	Organization	Jurisdiction
Larry Graf	Coordinator/Chief	Emergency Mgmt. Agency/EMS	Menard County
Jason Sukut	Asst. Coordinator/Captain	Emergency Mgmt Agency/EMS	Menard County
Jason LeMar	Supervisor of Assessments	Office of Assessments	Menard County
Steve Duncan	County Coordinator Zoning Officer	Menard County Government	Menard County
Alicia Davis/Dean Heyen	Administrator	Menard Co. Health Dept.	Menard County
Marilyn Kelton	Resource Conservationist	Menard County Soil and Water Conservation District	Menard County
Tom Casson	Engineer/Supervisor	Menard County Hwy Dept.	Menard County
Teresa Doll	Coordinator – Disaster Response	American Red Cross	Menard County
Charles Jones/Rod Harrison	Sheriff	Menard Co. Sheriff's Dept.	Menard County

Name	Title	Organization	Jurisdiction
Matt Duncheon	Mayor	Athens City Council	City of Athens
Bob Dowell	Alderman/Firefighter	Athens City Council/VFD	City of Athens
Jason Upton	Superintendent	Athens Street/Sewer Dept.	City of Athens
Joe Crowe	Chief	Athens Volunteer Fire Dept.	Athens Fire Protection District
Roy Lee	Superintendent	Greenview EMA	City of Greenview
Gary DePatis		CUSD200	City of Greenview
John Stiltz	Mayor	Petersburg City Council	City of Petersburg
Jim Schoenherr	Zoning Officer	Zoning Office	City of Petersburg
Jim Nimmo	Superintendent	Petersburg Street Dept.	City of Petersburg
Roger Davis	Superintendent	Petersburg Water Dept.	City of Petersburg
Danny Martin	Police Chief	Petersburg Police Dept.	City of Petersburg
Matt Heubner	Fire Chief	Petersburg Volunteer Fire Dept.	Petersburg Fire Protection District
Jeff Heubner	Captain	Petersburg Volunteer Fire Dept.	Petersburg Fire Protection District
Andrew Adams			Village of Oakford
Ronda Tippett			Village of Oakford
Karen Short			Village of Oakford
James Masten	Village President	Tallula Village Board	Village of Tallula
Buddy W. King		Tallula Fire Department	Village of Tallula
Jared Owen	Disaster Services Planner	Illinois Emergency Management Agency	State of Illinois
Russ Steil	Coordinator	Illinois Emergency Management Agency	Region 6
Teresa Doll	Coordinator	American Red Cross	Region

The Disaster Mitigation Act (DMA) planning regulations stress that planning team members must be active participants. The Menard County MHMP committee members were actively involved on the following components:

- Attending the MHMP meetings
- Providing available GIS data and historical hazard information
- Reviewing and providing comments on the draft plans
- Coordinating and participating in the public input process
- Coordinating the formal adoption of the plan by the county

An MHMP kickoff meeting was held at the community center in Petersburg, IL, on February 9, 2010. Representatives from SIUC explained the rationale behind the MHMP program and answered questions from the participants. SIUC also provided an overview of HAZUS-MH, described the timeline and the process of the mitigation planning project, and presented Menard County with a Memorandum of Understanding (MOU) for sharing data and information.

The Menard County Multi-Hazard Mitigation Planning Committee met on February 9, 2010, March 24, 2010, May 19th, 2010, July 28, 2010 and October 13, 2010. Each meeting was approximately two hours in length. The meeting minutes are included in Appendix A. During these meetings, the planning team successfully identified critical facilities, reviewed hazard data

and maps, identified and assessed the effectiveness of existing mitigation measures, established mitigation projects, and assisted with preparation of the public participation information.

1.3 Public Involvement in Planning Process

An effort was made to solicit public input during the planning process, and a public meeting was held on May 19th, 2010 to review the county's risk assessment. Appendix A contains the minutes from the public meeting. Appendix B contains articles published by the local newspaper throughout the public input process.

1.4 Neighboring Community Involvement

The Menard County planning team invited participation from various representatives of county government, local city and town governments, community groups, local businesses, and universities. The team also invited participation from adjacent counties to obtain their involvement in the planning process. Details of neighboring stakeholders' involvement are summarized in Table 1-2.

Table 1-2: Neighboring Community Participation

Person Participating	Neighboring Jurisdiction	Organization	Participation Description
Roger Lauder	Cass County	Cass County Emergency Services and Disaster Agency	Invited to participate in public meeting, reviewed the plan and provide comments.
Dan Fulscher	Logan County	Logan County Emergency Services and Disaster Agency	Invited to participate in public meeting, reviewed the plan and provide comments.
Greg Griffin	Mason County	Mason County Emergency Management Agency	Invited to participate in public meeting, reviewed the plan and provide comments.
David Butt	Sangamon County	Sangamon County Office of Emergency Management	Invited to participate in public meeting, reviewed the plan and provide comments.

1.5 Review of Technical and Fiscal Resources

The MHMP planning team has identified representatives from key agencies to assist in the planning process. Technical data, reports, and studies were obtained from these agencies. The organizations and their contributions are summarized in Table 1-3.

Table 1-3: Key Agency Resources Provided

Agency Name	Resources Provided
Menard County Supervisor of Assessments	Parcel Map, Tax and Structure Data
Illinois Environmental Protection Agency	Illinois 2008 Section 303(d) Listed Waters and watershed maps
U.S. Census	County Profile Information, e.g. Population and Physical Characteristics
Department of Commerce and Economic Opportunity	Community Profiles
Illinois Department of Employment Security	Industrial Employment by Sector
NOAA National Climatic Data Center	Climate Data
Illinois Emergency Management Agency	2007 Illinois Natural Hazard Mitigation Plan

Agency Name	Resources Provided
Illinois Water Survey (State Climatologist Office)	Climate Data
United States Geological Survey	Physiographic/Hill Shade Map, Earthquake Information, Hydrology
Illinois State Geological Survey	Geologic, Karst Train, Physiographic Division and Coal Mining Maps

1.6 Review of Existing Plans

Menard County and its local communities utilized a variety of planning documents to direct community development. These documents include land use plans, comprehensive plans, emergency response plans, municipal ordinances, and building codes. The planning process also incorporated the existing natural hazard mitigation elements from previous planning efforts. Table 1-4 lists the plans, studies, reports, and ordinances used in the development of the plan.

Table 1-4: Planning Documents Used for MHMP Planning Process

Author(s)	Year	Title	Description	Where Used
Larry Graf, Menard County EMA Coordinator	Updated 2009-10	Menard County Emergency Operations Plan	The EOP details situations, assumptions, concept of operations, organization and assignment of responsibilities, direction and control in the event of a disaster in the county.	Sections 1-3
FEMA	2010	Menard County Flood Insurance Study	Describes the NFIP program, which communities participates; provide flood maps	Sections 4 and 5
Supervisor of Assessments	2009	GIS Database	Parcel and Assessor Data for Menard County.	Section 4
State of Illinois Emergency Management Plan	2007	2007 Illinois Natural Hazard Mitigation Plan	This plan provides an overview of the process for identifying and mitigating natural hazards in Illinois as require by the Disaster Mitigation Act of 2000.	Guidance on hazards and mitigation measures and background on historical disasters in Illinois.

Section 2 - Jurisdiction Participation Information

The incorporated communities included in this multi-jurisdictional plan are listed in Table 2-1.

Table 2-1: Participating Jurisdictions

Jurisdiction Name
Menard County
City of Athens
City of Petersburg
Village of Greenview
Village of Oakford
Village of Tallula

2.1 Adoption by Local Governing Body

The draft plan was made available on October 13, 2010 to the planning team for review. Comments were then accepted. The Menard County hazard mitigation planning team presented and recommended the plan to the County Commissioners, who adopted it on <date adopted>. Resolution adoptions are included in Appendix C of this plan.

2.2 Jurisdiction Participation

It is required that each jurisdiction participates in the planning process. Table 2-2 lists each jurisdiction and describes its participation in the construction of this plan.

Table 2-2: Jurisdiction Participation

Jurisdiction Name	Participating Members	Participation Description
Menard County	Larry Graff	MHMP planning team member
City of Athens	Matt Duncheon, and Bob Dowell	MHMP planning team member
City of Petersburg	John Stiltz	MHMP planning team member
Village of Greenview	Roy Lee	MHMP planning team member
Village of Oakford	Karen Short	MHMP planning team member
Village of Tallula	Jim Masten	MHMP planning team member

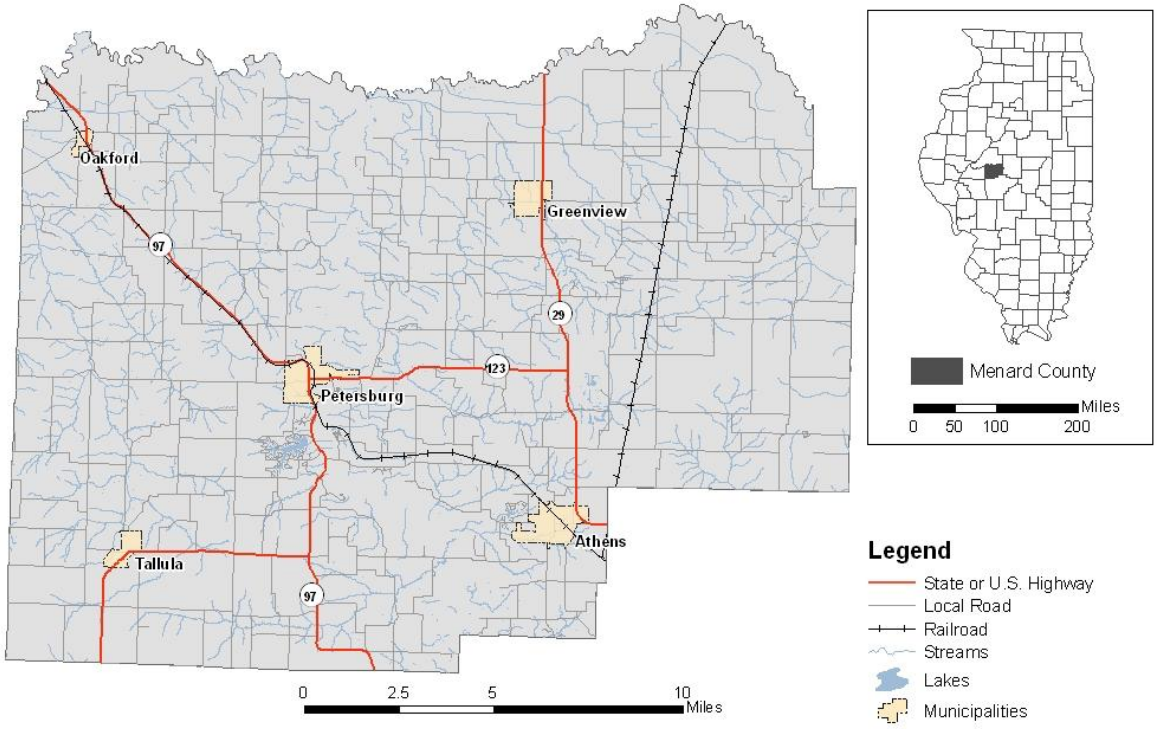
All members of the MHMP planning committee were actively involved in attending the MHMP meetings, providing available Geographic Information Systems (GIS) data and historical hazard information, reviewing and providing comments on the draft plans, coordinating and participating in the public input process, and coordinating the county's formal adoption of the plan.

Section 3 - Jurisdiction Information

Menard County was formed from Sangamon County on February 15, 1839. It was named in honor of Col. Pierre Menard, a Frenchman who settled at Kaskaskia in 1790. Menard was very popular in his time and became the first lieutenant governor of Illinois. The City of Petersburg is the county seat.

Menard County is located in the central Illinois. The county has total land area of 315 square miles. It is bordered by Mason County in the north, Logan County in the east, Sangamon County in the south, and Cass County in the west. Figure 3-1 depicts Menard County's location.

Figure 3-1: Menard County, Illinois



Sources:http://www.cyberdriveillinois.com/departments/archives/irad/Menard.html; http://www.fedstats.gov/qf/states/17000.html; http://factfinder.census.gov; http://www.genealogytrails.com

3.1 Topography

Menard County is situated in the Central Lowland Province of the Till Plains Section and lies mostly within the Springfield Plain physiographic division. The county's northern border is defined by the Sangamon River and Salt Creek; the northwest corner of the county lies within the Bloomington Ancient Illinois Floodplain physiographic division. The Springfield Plain includes the level portion of the Illinois drift sheet in central and southern Illinois. It is characterized mainly by its flatness and by its relatively shallow entrenchment of drainage.

3.2 Climate

Menard County climate is typical of Central Illinois. The variables of temperature, precipitation, and snowfall can vary greatly from one year to the next. Winter temperatures can fall below freezing starting as early as October and extending as late as May. Based on National Climatic Data Center (NCDC) normals from 1971 to 2000 in Springfield, which is the closest city with available climate data, the average winter low is 17.1° F and the average winter high is 38.9° F. In summer, the average low is 61.9° F and average high is 86.5° F. Average annual precipitation is 35.56 inches throughout the year.

3.3 Demographics

Menard County has a population of 12,486. According to American FactFinder (2008), Menard County's population has been relatively stable since 2000. The population is spread throughout 16 precincts: Athens North, Athens South, Atterberry, Fancy Frairie, Greenview, Indian Creek, Irish Grove, Oakford, Petersburg East, Petersburg North, Petersburg South, Petersburg West, Rock Creek, Sandridge, Sugar Grove, and Tallula. The largest community in Menard County is Petersburg, which has a population of approximately 2,299. The breakdown of population by precinct is included in Table 3-1. Precincts containing incorporated communities are marked with an asterisk (*).

Table 3-1: Population by Community

Precincts	2000 Population	% of County
Athens North No. 2*	1,954	15.65
Athens South No. 1*	1,259	10.08
Atterberry No. 10	194	1.55
Fancy Prairie No. 3	192	1.54
Greenview No. 6*	1,038	8.31
Indian Creek No. 7	278	2.23
Irish Grove No. 4	229	1.83
Oakford No. 9*	488	3.91
Petersburg East No. 13	1,311	10.50
Petersburg North No. 14	137	1.10
Petersburg South No. 15	997	7.98
Petersburg West No. 16*	2,299	18.41
Rock Creek No. 12	796	6.38
Sandridge No. 8	167	1.34
Sugar Grove No. 5	331	2.65
Tallula No. 11*	816	6.54

Source: American FactFinder, 2000

3.4 Economy

American FactFinder reported for 2000 that 61.5% of the workforce in Menard County was employed in the private sector. The breakdown is included in Table 3-2. Educational, health, and social services represents the largest sector, employing approximately 20.5% of the workforce. The 2000 annual per capita income in Menard County is $21,584.

Table 3-2: Industrial Employment by Sector

Industrial Sector	% Dist. In County (2000)
Agriculture, forestry, fishing, hunting, and mining	5.8
Construction	7.6
Manufacturing	5.4
Wholesale trade	2.2
Retail trade	9.3
Transportation, warehousing and utilities	4.9
Information	1.9
Finance, insurance, real estate, and rental/leasing	6.6
Professional, technical services	5.4
Educational, health, and social services	20.5
Arts, entertainment, recreation	5.9
Other Services	5.7
Public administration	18.8

Source: American FactFinder, 2000

3.5 Industry

Menard County's major employers and number of employees are listed in Table 3-3. The largest employer is Menard County Government. The PORTA and Athens school districts are the second largest empolyers.

Table 3-3: Major Employers

Company Name	City/Town	Type of Business
Manufacturing		
Menard Electric	Petersburg, IL	Electric Company
Petersburg Plumbing & Heating	Petersburg, IL	Service
Brandt Professional Agriculture	Greenview, IL	Agriculture
Government		
Menard County EMS	Petersburg, IL	County Government
Menard County Health Department	Petersburg, IL	County Government
Menard County Highway Department	Petersburg, IL	County Government
Menard County Sheriff's Department	Petersburg, IL	County Government
Petersburg Government	Petersburg, IL	Local Government
Athens Government	Athens, IL	Local Government

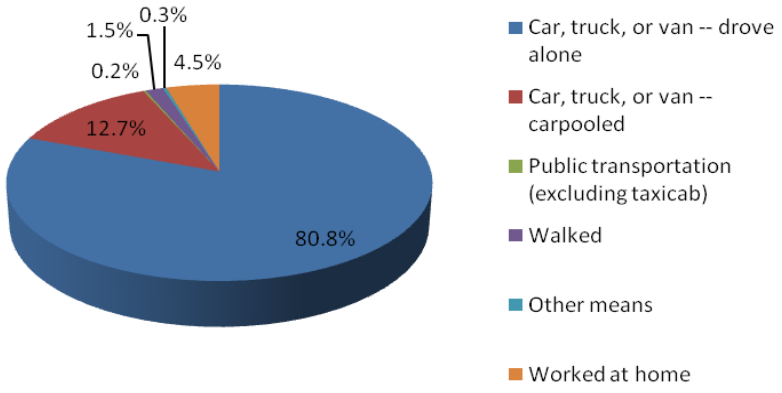
Company Name	City/Town	Type of Business
Health Care		
Sunny Acres Nursing Home & Countryside Estates	Petersburg, IL	Nursing Home
Menard Convalescent Center	Petersburg, IL	Nursing Home
Other		
PORTA School District	Petersburg, IL	School
Athens School District	Athens, IL	School
Greenview School District	Greenview, IL	School
National Bank of Petersburg	Petersburg, IL	Financial Institution
Athens State Bank	Athens, IL	Financial Institution
Petefish, Skiles & Co.	Multiple locations in Co.	Financial Instituion
Farm Supply	Multiple locations in Co	Agriculture Supply
Kent's IGA	Petersburg, IL	Grocery
Dollar General	Petersburg & Athens, IL	Retail

Source: Menard County Planning Team

Commuter Patterns

According to American FactFinder information from 2000, approximately 9,588 of Menard County's population are in the work force. The average travel time from home to work is 27.9 minutes. Figure 3-2 depicts the commuting patterns for Menard County's labor force.

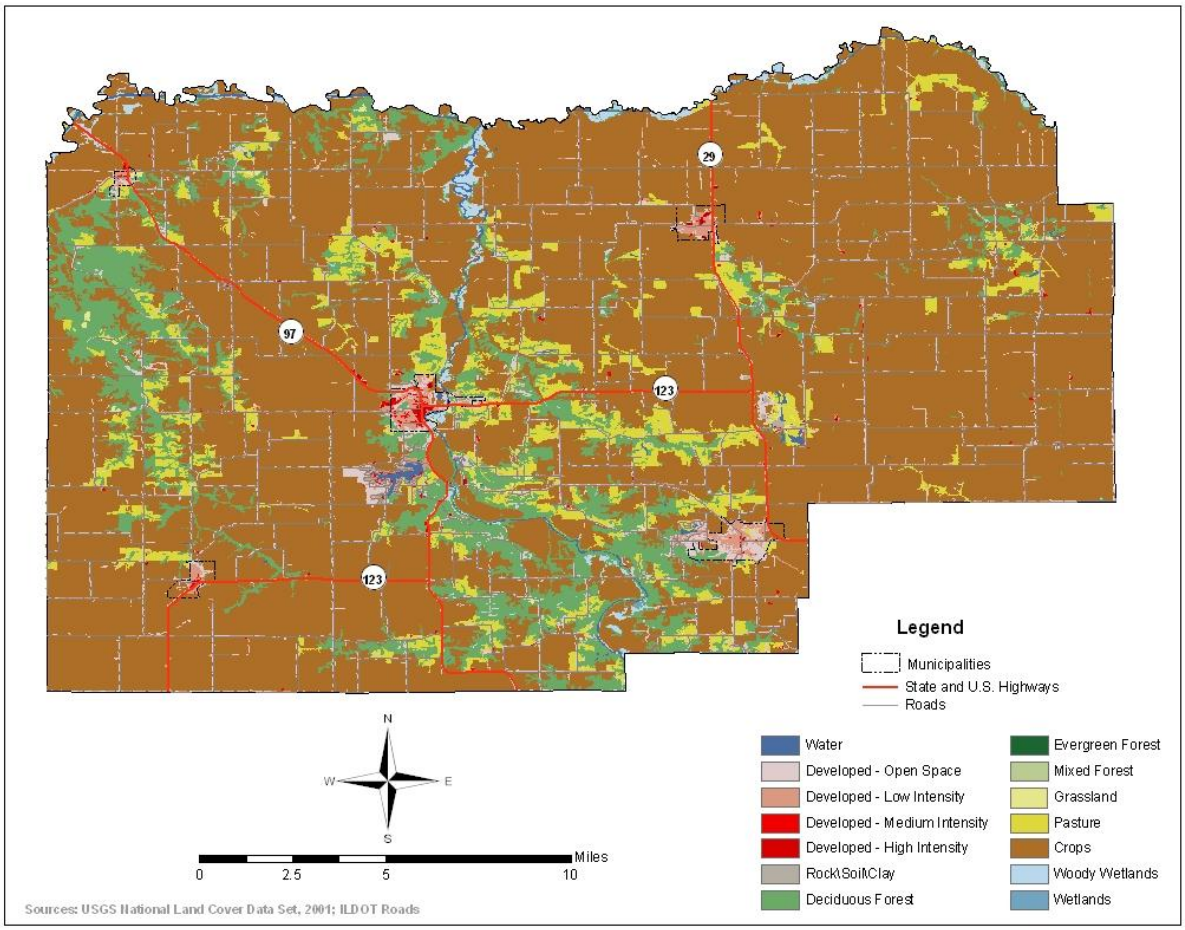
Figure 3-2: Commuter Patterns for Menard County



3.6 Land Use and Development Trends

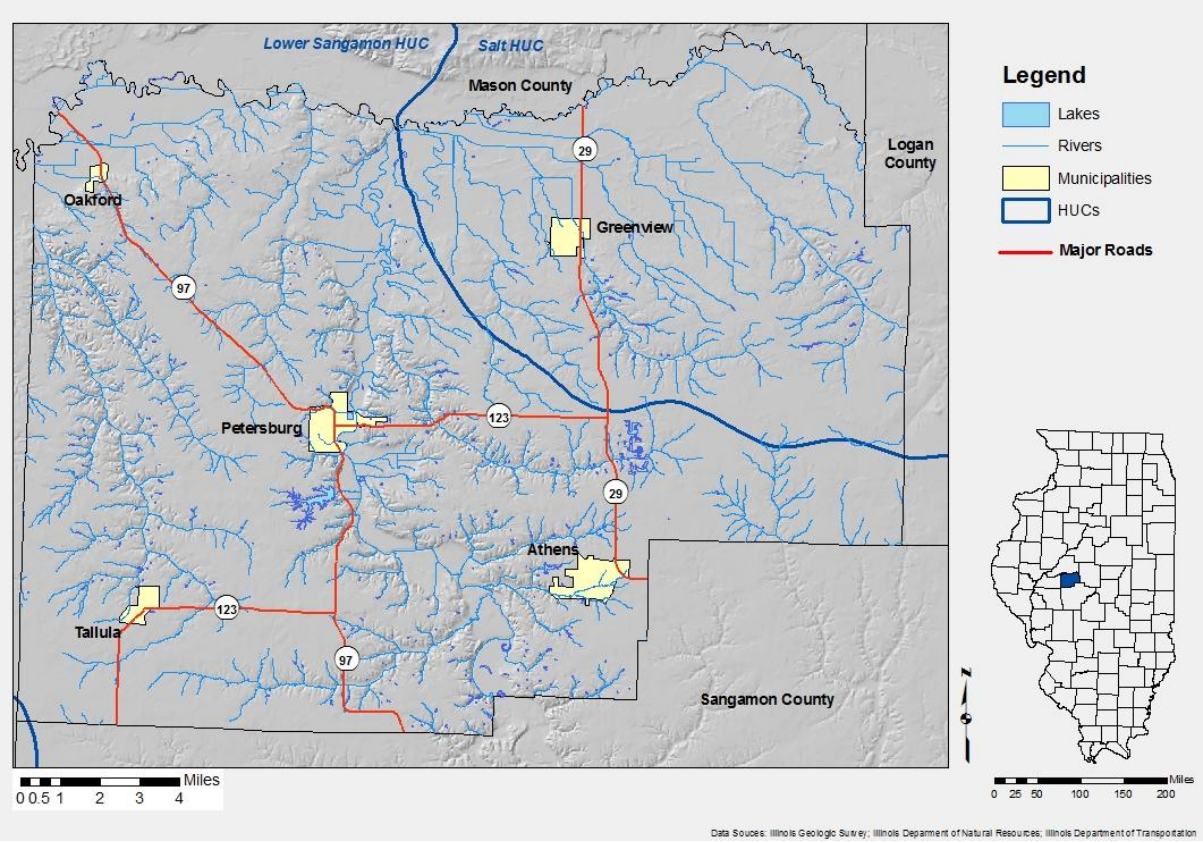
Agriculture is the predominant land use in Menard County with over 73% of the land devoted to growing crops. Other significant land uses include manufacturing, residential, and tourism. Menard County is home to one park, Lincoln's New Salem State Park, which has an area of approximately 700 acres and includes several hiking trails and abundant camping facilities. Figure 3-3 shows the land use for Menard County.

Figure 3-3: Land Use in Menard County



3.7 Major Lakes, Rivers, and Watersheds

Menard County has a number of bodies of water including Mound Lake, Day Lake, Lake Petersburg, McMann Lake, and Country Lake. It is also bounded by the Sangamon River and Salt Creek to the north. According to the USGS, Menard County consists of two drainage basins: the Lower Sangamon (HUC 7130008) and the Salt (HUC 7130009).


Lower Sangamon HUC
Salt HUC
Mason County
Logan County
Oakford
Greenview
Petersburg
Athens
Tallula
Sangamon County
29
97
123
Legend
Lakes
Rivers
Municipalities
HUCs
Major Roads
Miles
0 0.5 1 2 3 4
Miles
0 25 50 100 150 200
Data Souces: Illinois Geologic Survey; Illinois Deparment of Natural Resources; Illinois Department of Transportation

Section 4 - Risk Assessment

The goal of mitigation is to reduce the future impacts of a hazard including loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on sound risk assessment. A risk assessment involves quantifying the potential loss resulting from a disaster by assessing the vulnerability of buildings, infrastructure, and people. This assessment identifies the characteristics and potential consequences of a disaster, how much of the community could be affected by a disaster, and the impact on community assets. A risk assessment consists of three components—hazard identification, vulnerability analysis, and risk analysis.

4.1 Hazard Identification/Profile

4.1.1 Existing Plans

The plans identified in Table 1-3 did not contain a risk analysis. These local planning documents were reviewed to identify historical hazards and help identify risk. To facilitate the planning process, State and Federal data were used for the flood analysis.

4.1.2 National Hazard Records

4.1.2.1 National Climatic Data Center (NCDC) Records

To assist the planning team, historical storm event data was compiled from the National Climatic Data Center (NCDC). NCDC records are estimates of damage reported to the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to given weather events.

The NCDC data included 149 reported events in Menard County between March 21, 1996 and the October 31, 2009 (the most updated information as of the date of this plan). A summary table of events related to each hazard type is included in the hazard profile sections that follow. A full table listing all events, including additional details, is included as Appendix D. In addition to NCDC data, Storm Prediction Center (SPC) data associated with tornadoes, strong winds, and hail were plotted using SPC recorded latitude and longitude. These events are plotted and included as Appendix E. The list of NCDC hazards is included in Table 4-1.

Table 4-1: Climatic Data Center Historical Hazards

Hazard
Tornadoes
Severe Thunderstorms
Drought/Extreme Heat
Winter Storms
Flood/Flash flood

4.1.2.2 FEMA Disaster Information

Since 1965 there have been 55 Federal Disaster Declarations for the state of Illinois. Emergency declarations allow states access to FEMA funds for Public Assistance (PA); disaster declarations allow for even more PA funding including Individual Assistance (IA) and the Hazard Mitigation Grant Program (HMGP). Menard County has received federal aid for both PA and IA funding for four declared disasters since 1965. Figure 4-1 depicts the disasters and emergencies that have been declared for Menard County since 1965. Table 4-2 lists more specific information for each declaration.

Figure 4-1: FEMA-Declared Emergencies and Disasters in Menard County (1965-present)

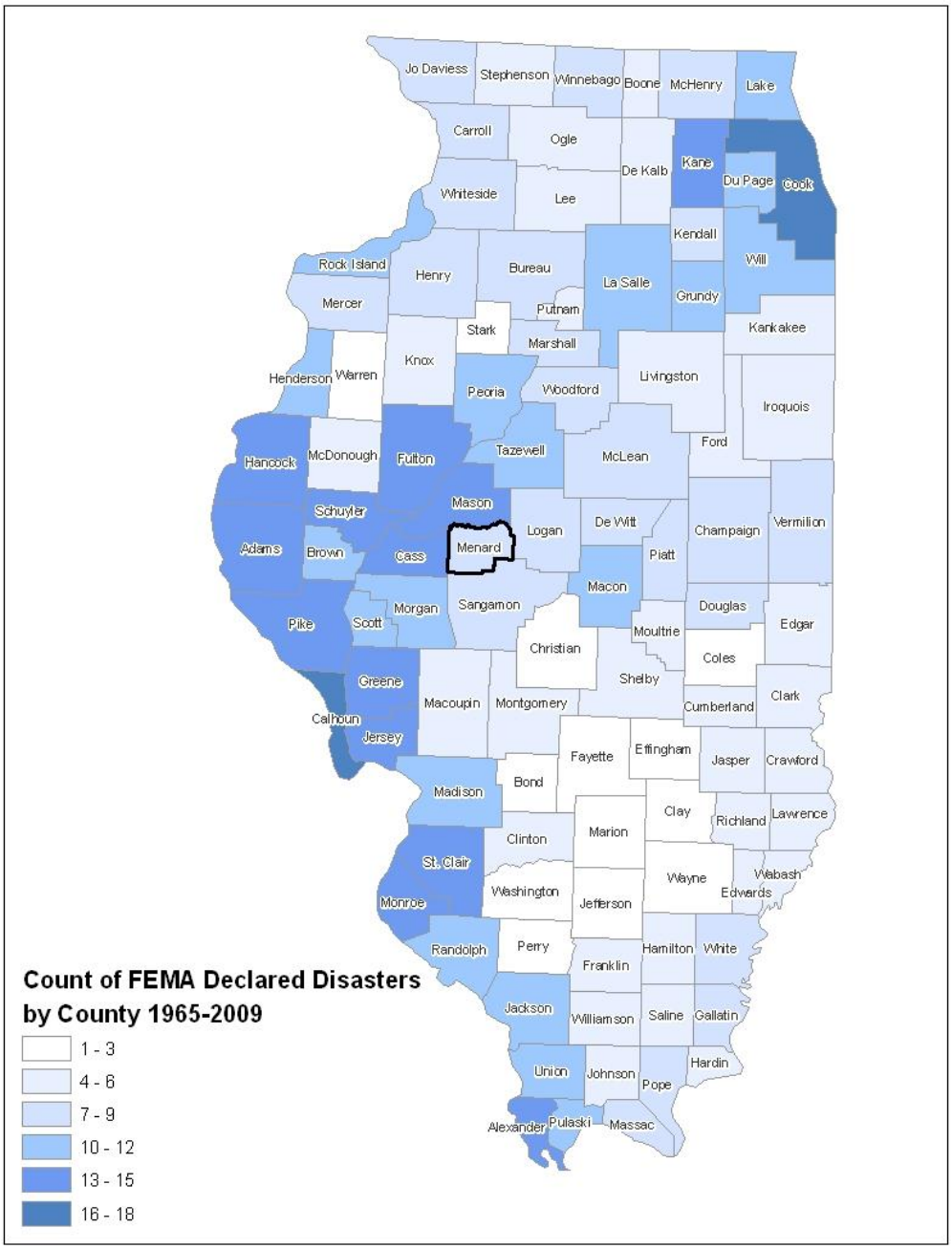


Table 4-2: FEMA-Declared Emergencies in Menard County (1999-present)

Date of Incident	Date of Declaration	Disaster Description	Type of Assistance
January 1, 1999	January 8, 1999	Winter Snow Storm	Public
Dec.10-31, 2000	January 17, 2001	Severe Winter Storm	Public
April 21-May 23, 2002	May 21, 2002	Severe Storms, Tornadoes, and Flooding	Individual
Nov. 30-Dec. 1, 2006	Dec. 29, 2006	Snow	Public

4.1.3 Hazard Ranking Methodology

Based on planning team input, national datasets, and existing plans, Table 4-2 lists the hazards Menard County will address in this multi-hazard mitigation plan. In addition, these hazards ranked the highest based on the Risk Priority Index discussed in section 4.1.4.

Table 4-2: Planning Team Hazard List

Hazard
Flooding
Tornado
Earthquakes
Dam or Levee Failure
Thunderstorms/ High Winds/Hail/ Lightning
Winter Storms
Transportation Hazardous Material Release

4.1.3.1 Calculating the Risk Priority Index

The first step in determining the Risk Priority Index (RPI) was to have the planning team members generate a list of hazards which have befallen or could potentially befall their community. Next, the planning team members were asked to assign a likelihood rating based on the criteria and methods described in the following table. Table 4-3 displays the probability of the future occurrence ranking. This ranking was based upon previous history and the definition of hazard. Using the definitions given, the likelihood of future events is "Quantified" which results in the classification within one of the four "Ranges" of likelihood.

Table 4-3: Future Occurrence Ranking

Probability	Characteristics
4 - *Highly Likely*	Event is probable within the calendar year. Event has up to 1 in 1 year chance of occurring. (1/1=100%) History of events is greater than 33% likely per year.
3 - *Likely*	Event is probable within the next three years. Event has up to 1 in 3 years chance of occurring. (1/3=33%) History of events is greater than 20% but less than or equal to 33% likely per year.
2 - *Possible*	Event is probable within the next five years. Event has up to 1 in 5 years chance of occurring. (1/5=20%) History of events is greater than 10% but less than or equal to 20% likely per year.
1 - *Unlikely*	Event is possible within the next ten years. Event has up to 1 in 10 years chance of occurring. (1/10=10%) History of events is less than or equal to 10% likely per year.

Next, planning team members were asked to consider the potential magnitude/severity of the hazard according to the severity associated with past events of the hazard. Table 4-4 gives four classifications of magnitude/severity.

Table 4-4: Hazard Magnitude

Magnitude/Severity	Characteristics
8 - *Catastrophic*	Multiple deaths. Complete shutdown of facilities for 30 or more days. More than 50% of property is severely damaged.
4 - *Critical*	Injuries and/or illnesses result in permanent disability. Complete shutdown of critical facilities for at least 14 days. More than 25% of property is severely damaged.
2 - *Limited*	Injuries and/or illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than seven days. More than 10% of property is severely damaged.
1 - *Negligible*	Injuries and/or illnesses are treatable with first aid. Minor quality of life lost. Shutdown of critical facilities and services for 24 hours or less. Less than 10% of property is severely damaged.

Finally, the RPI was calculated by multiplying the probability by the magnitude/severity of the hazard. Using these values, the planning team member where then asked to rank the hazards. Table 4-5 identifies the RPI and ranking for each hazard facing Menard County.

Table 4-5: Menard County Hazards (RPI)

Hazard	Probability	Magnitude/Severity	Risk Priority Index	Rank
Tornado	4 - Highly Likely	8 - Catastrophic	32	1
Flooding	4 - Highly Likely	2 - Limited	8	2
Transportation Hazardous Material Release	2 - Possible	4 - Critical	8	3
Fire/Explosion	2 - Possible	4 - Critical	8	4
Winter Storms	3 - Likely	2 - Limited	6	5
Thunderstorms/High Winds/Hail/Lightning	4 - Highly Likely	1 - Negligible	4	6
Dam/Levee Failure	2 - Possible	2 - Limited	4	7
Extreme Heat/Drought	3 - Likely	1 - Negligible	3	8
Earthquake	1 - Unlikely	4 - Critical	4	9

4.1.3.2 Jurisdictional Hazard Ranking

Because the jurisdictions in Menard County differ in their susceptibilities to certain hazards—for example, the City of Petersburg, which is located on the Sangamon River Floodplain is more likely to experience significant flooding than the Village of Tallula which is located on the uplands outside of any large stream's or river's floodplain which could potentially cause significant flooding the hazards identified by the planning team were then ranked by the individual jurisdictions using the methodology outlined in Section 4.1.3.1. The SIUC rankings

were based on input from the planning team members, available historical data, and the hazard modeling results described within this hazard mitigation plan. During the five-year review of the plan this table will be updated by the planning team to ensure these jurisdictional rankings accurately reflect each community's assessment of these hazards. Table 4-6 lists the jurisdictions and their respective hazard rankings (Ranking 1 being the highest concern).

Table 4-6: Hazard Rankings by Jurisdiction

Jurisdiction	Hazard									
	Tornado	HAZMAT	Earthquake	Thunderstorm	Flooding	Winter Storms	Excessive Heat/Drought	Subsidence	Dam/Levee Failure	Fire/ Explosion
Village of Greenview	1	3	7	2	8	4	5	N/A	N/A	6
Village of Oakford	1	5	9	2	3	4	7	10	8	6
City of Petersburg	1	4	9	5	2	3	8	N/A	7	6
Village of Tallula	1	5	6	4	9	2	3	8	N/A	7
City of Athens	1	2	10	3	5	4	7	8	9	6

N/A = Not Applicable

4.1.4 GIS and HAZUS-MH

The third step in this assessment is the risk analysis, which quantifies the risk to the population, infrastructure, and economy of the community. Where possible, the hazards were quantified using GIS analyses and HAZUS-MH. This process reflects a Level 2 approach to analyzing hazards as defined for HAZUS-MH. The approach includes substitution of selected default data with local data. This process improved the accuracy of the model predictions.

HAZUS-MH generates a combination of site-specific and aggregated loss estimates depending upon the analysis options that are selected and the input that is provided by the user. Aggregate inventory loss estimates, which include building stock analysis, are based upon the assumption that building stock is evenly distributed across census blocks/tracts. Therefore, it is possible that overestimates of damage will occur in some areas while underestimates will occur in other areas. With this in mind, total losses tend to be more reliable over larger geographic areas than for individual census blocks/tracts. It is important to note that HAZUS-MH is not intended to be a substitute for detailed engineering studies. Rather, it is intended to serve as a planning aid for communities interested in assessing their risk to flood-, earthquake-, and hurricane-related hazards. This documentation does not provide full details on the processes and procedures completed in the development of this project. It is only intended to highlight the major steps that were followed during the project.

Site-specific analysis is based upon loss estimations for individual structures. For flooding, analysis of site-specific structures takes into account the depth of water in relation to the

structure. HAZUS-MH also takes into account the actual dollar exposure to the structure for the costs of building reconstruction, content, and inventory. However, damages are based upon the assumption that each structure will fall into a structural class, and structures in each class will respond in a similar fashion to a specific depth of flooding or ground shaking. Site-specific analysis is also based upon a point location rather than a polygon, therefore the model does not account for the percentage of a building that is inundated. These assumptions suggest that the loss estimates for site-specific structures as well as for aggregate structural losses need to be viewed as approximations of losses that are subject to considerable variability rather than as exact engineering estimates of losses to individual structures.

The following events were analyzed. The parameters for these scenarios were created through GIS, HAZUS-MH, and historical information to predict which communities would be at risk.

Using HAZUS-MH

1. 100-year overbank flooding
2. Earthquake scenarios

Using GIS

1. Tornado
2. Hazardous material release

4.2 Vulnerability Assessment

4.2.1 Asset Inventory

4.2.1.1 Processes and Sources for Identifying Assets

The HAZUS-MH data is based on best available national data sources. The initial step involved updating the default HAZUS-MH data using State of Illinois data sources. At Meeting #1, the planning team members were provided with a plot and report of all HAZUS-MH critical facilities. The planning team took GIS data provided by SIU; verified the datasets using local knowledge, and allowed SIU to use their local GIS data for additional verification. SIU GIS analysts made these updates and corrections to the HAZUS-MH data tables prior to performing the risk assessment. These changes to the HAZUS-MH inventory reflect a Level 2 analysis. This update process improved the accuracy of the model predictions.

The default HAZUS-MH data has been updated as follows:

- The HAZUS-MH defaults, critical facilities, and essential facilities have been updated based on the most recent available data sources. Critical and essential point facilities have been reviewed, revised, and approved by local subject matter experts at each county.
- The essential facility updates (schools, medical care facilities, fire stations, police stations, and EOCs) have been applied to the HAZUS-MH model data. HAZUS-MH reports of essential facility losses reflect updated data.

Menard County provided SIUC with parcel boundaries and county Assessor records. Records without improvements were deleted. The parcel boundaries were converted to parcel points

located in the centroids of each parcel boundary. Each parcel point was linked to an Assessor record based upon matching parcel numbers. The generated building inventory points represent the approximate locations (within a parcel) of building exposure. The parcel points were aggregated by census block.

- The aggregate building inventory tables used in this analysis have not been updated. Default HAZUS-MH model data was used for the earthquake.
- For the flood analysis, user-defined facilities were updated from the building inventory information provided by Menard County.

Parcel-matching results for Menard County are listed in Table 4-7.

Table 4-7: Parcel-Matching for Menard County

Data Source	Count
Assessor Records	11,849
County-Provided Parcels	11,897
Assessor Records with Improvements	6,328
Matched Parcel Points	6,328

The following assumptions were made during the analysis:

- The building exposure for flooding, tornado, and HAZMAT is determined from the Assessor records. It is assumed that the population and the buildings are located at the centroid of the parcel.
- The building exposure for earthquake used HAZUS-MH default data.
- The algorithm used to match county-provided parcel point locations with the Assessor records is not perfect. The results in this analysis reflect matched parcel records only. The parcel-matching results for Menard County are included in Table 4-4.
- Population counts are based upon 2.5 persons per household. Only residential occupancy classes are used to determine the impact on the local population. If the event were to occur at night, it would be assumed that people are at home (not school, work, or church).
- The analysis is restricted to the county boundaries. Events that occur near the county boundaries do not contain damage assessments from adjacent counties.

4.2.1.2 Essential Facilities List

Table 4-8 identifies the essential facilities that were added or updated for the analysis. Essential facilities are a subset of critical facilities. A map and list of all critical facilities is included as Appendix F.

Table 4-8: Essential Facilities List

Facility	Number of Facilities
Care Facilities	3
Emergency Operations Centers	2
Fire Stations	6
Police Stations	4
Schools	7

4.2.1.3 Facility Replacement Costs

Facility replacement costs and total building exposure are identified in Table 4-9. The replacement costs have not been updated by local data. Table 4-9 also includes the estimated number of buildings within each occupancy class.

Table 4-9: Building Exposure

General Occupancy	Estimated Total Buildings	Total Building Exposure (X 1000)
Agricultural	25	$12,846
Commercial	166	$85,430
Education	7	$12,921
Government	13	$4,618
Industrial	45	$24,720
Religious/Non-Profit	25	$22,872
Residential	6,781	$724,624
Total	**7,062**	**$888,031**

4.3 Future Development

As the county's population continues to grow, the residential and urban areas will extend further into the county, placing more pressure on existing transportation and utility infrastructure while increasing the rate of farmland conversion; Menard County will address specific mitigation strategies in Section 5 to alleviate such issues.

Because Menard County is vulnerable to a variety of natural and technological threats, the county government—in partnership with state government—must make a commitment to prepare for the management of these types of events. Menard County is committed to ensuring that county elected and appointed officials become informed leaders regarding community hazards so that they are better prepared to set and direct policies for emergency management and county response.

4.4 Hazard Profiles

4.4.1 Tornado Hazard

Hazard Definition for Tornado Hazard

Tornadoes pose a great risk to Illinois and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of the state's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently-rotating columns of air extending from thunderstorms to the ground. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. The tornado scale ranges from low intensity F0 with effective wind speeds of 40 to 70 miles per hour to F5 tornadoes with effective wind speeds of over 260 miles per hour. The Fujita intensity scale is described in Table 4-10.

Table 4-10: Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
0 *Gale*	40-72 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
1 *Moderate*	73-112 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
2 *Significant*	113-157 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
3 *Severe*	158-206 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
4 *Devastating*	207-260 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
5 *Incredible*	261-318 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Source: NOAA Storm Prediction Center

Previous Occurrences for Tornado Hazard

There have been a few occurrences of tornadoes within Menard County during the past few decades. The NCDC database reported five tornadoes/funnel clouds in Menard County since 1959. The most recent recorded event occurred on April 2, 2006, when a tornado briefly touched down near Greenview and caused minor damage to one home.

Menard County NCDC recorded tornadoes are identified in Table 4-11. Additional details for NCDC events are included in Appendix D.

Table 4-11: Menard County Tornadoes*

Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Menard County	6/16/1973	Tornado	F0	0	0	0	0
Athens	7/28/1996	Tornado	F0	0	0	0	0
Petersburg	5/12/1998	Tornado	F0	0	0	0	0
Tallula	4/8/1999	Tornado	F0	0	0	0	0
Greenview	4/2/2006	Tornado	F0	0	0	0	0

* NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Geographic Location for Tornado Hazard

The entire county has the same risk for occurrence of tornadoes. They can occur at any location within the county.

Hazard Extent for Tornado Hazard

The historical tornadoes generally moved from southwest to northeast across the county. The extent of the hazard varies both in terms of the extent of the path and the wind speed.

Risk Identification for Tornado Hazard

Based on historical information, the occurrence of future tornadoes in Menard County is highly likely. Tornadoes with varying magnitudes are expected to happen. According to the RPI, tornadoes ranked as the number one hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
4	x	8	=	**32**

Vulnerability Analysis for Tornado Hazard

Tornadoes can occur within any area in the county; therefore, the entire county population and all buildings are vulnerable to tornadoes. To accommodate this risk, this plan will consider all buildings located within the county as vulnerable. The existing buildings and infrastructure in Menard County are discussed in Table 4-9.

Critical Facilities

All critical facilities are vulnerable to tornadoes. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts will vary based on the magnitude of the tornado but can include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). Table 4-8 lists the types and numbers of all of the essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

Building Inventory

The building exposure in terms of types and numbers of buildings for the entire county is listed in Table 4-9. The buildings within the county can all expect the same impacts, similar to those discussed for critical facilities. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, and loss of building function (e.g. damaged home will no longer be habitable causing residents to seek shelter).

Infrastructure

During a tornado the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these items could become damaged during a tornado. The impacts to these items include broken, failed, or impassable roadways, broken or failed utility lines (e.g. loss of power or gas to community), and railway failure from broken or impassable railways. Bridges could fail or become impassable causing risk to traffic.

An example scenario is described as follows to gauge the anticipated impacts of tornadoes in the county, in terms of numbers and types of buildings and infrastructure.

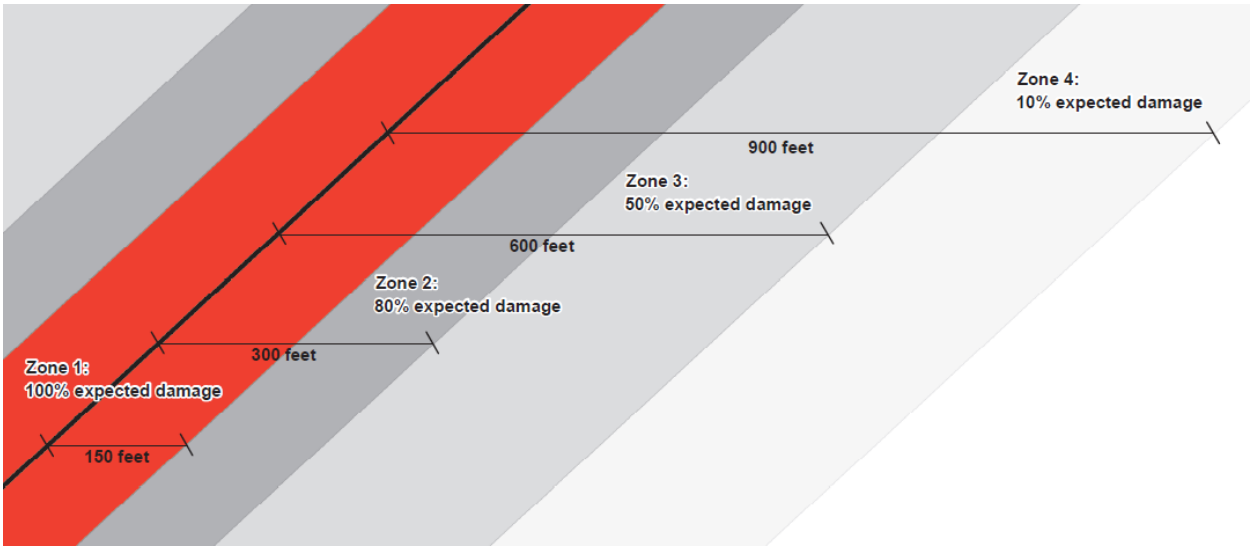
GIS overlay modeling was used to determine the potential impacts of an F4 tornado. The analysis used a hypothetical path based upon the F4 tornado event that ran for ~23 miles southwest to northeast through the county impacting Tallulah, Petersburg, and Greenview. The selected widths were modeled after a recreation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these six categories. Table 4-12 depicts tornado damage curves as well as path widths.

Table 4-12: Tornado Path Widths and Damage Curves

Fujita Scale	Path Width (feet)	Maximum Expected Damage
5	2,400	100%
4	1,800	100%
3	1,200	80%
2	600	50%
1	300	10%
0	150	0%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 4-2 and Table 4-13 describe the zone analysis. The selected hypothetical tornado path is depicted in Figure 4-3, and the damage curve buffers are shown in Figure 4-4.

Figure 4-2: F4 Tornado Analysis Using GIS Buffers



An F4 tornado has four damage zones, depicted in Table 4-13. Total devastation is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will experience 10% damage.

Table 4-13: F4 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	100%
2	150-300	80%
3	300-600	50%
4	600-900	10%

Figure 4-3: Hypothetical F4 Tornado Path in Menard County

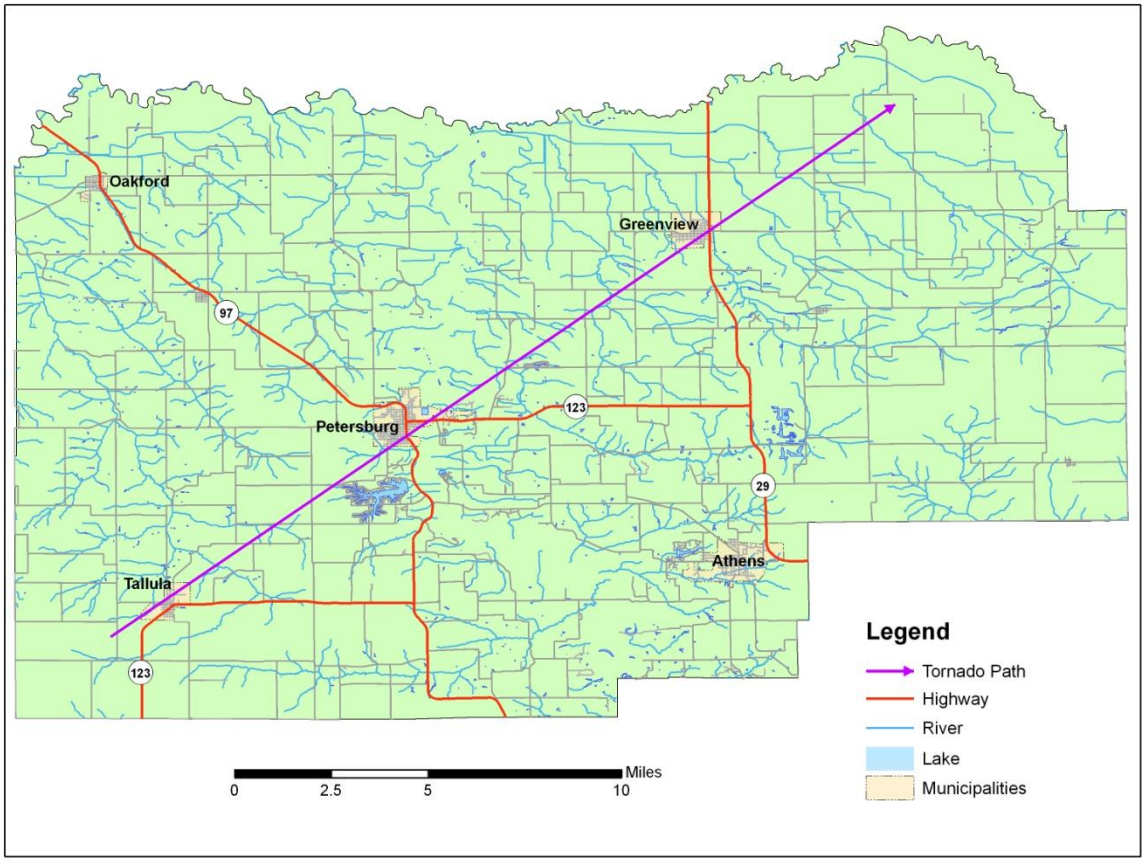
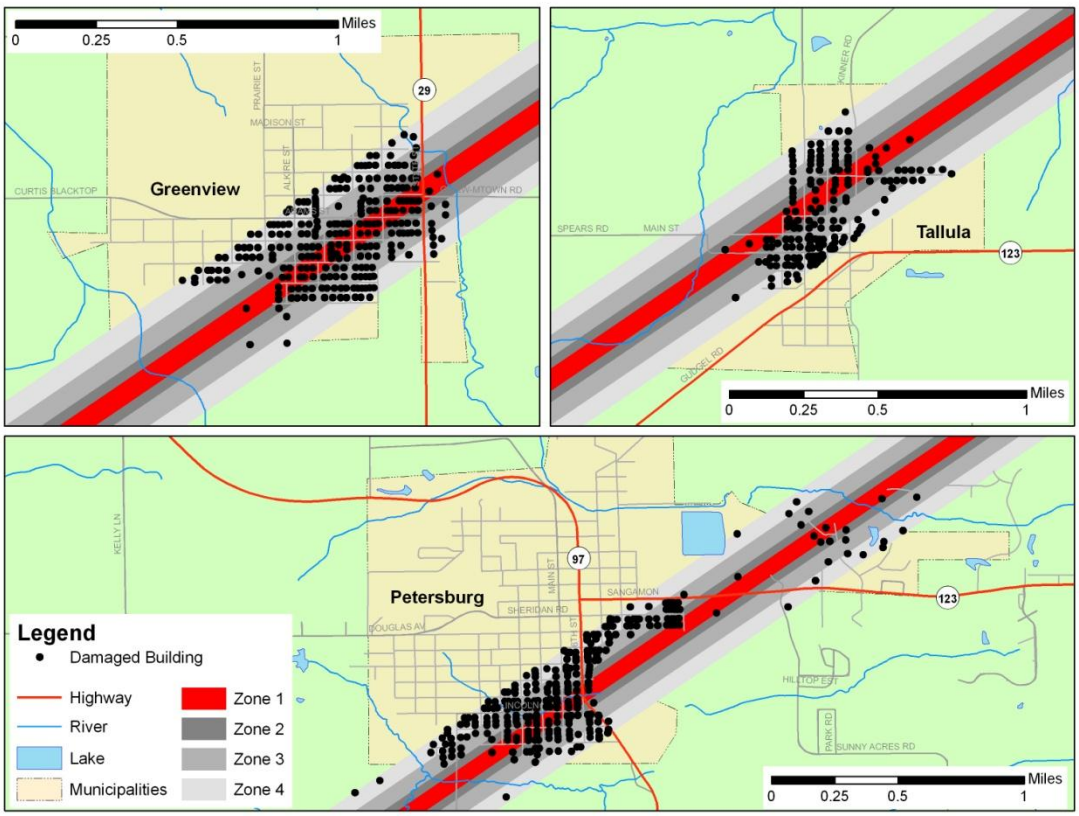


Figure 4-4: Modeled F4 Tornado Damage Buffers in Menard County: Greenview, Petersburg, and Tallula,



The results of the analysis are depicted in Tables 4-14 and 4-15. The GIS analysis estimates that 767 buildings will be damaged. The estimated building losses were $17.2 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Menard County that were joined with Assessor records showing property improvement.

The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable. For purposes of analysis, the total number of buildings and the building replacement costs for government, religious/non-profit, and education should be lumped together.

Table 4-14: Estimated Numbers of Buildings Damaged by Occupancy Type

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	91	98	187	190
Commercial	9	11	19	59
Industrial	0	0	0	0
Agriculture	5	0	9	7
Religious/Nonprofit	10	2	4	7
Government	4	11	29	13
Education	0	0	1	1
Total	**119**	**122**	**249**	**277**

Table 4-15: Estimated Building Losses by Occupancy Type

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	$3,645,920	$2,874,070	$3,375,926	$655,885
Commercial	$484,382	$546,462	$345,271	$259,415
Industrial	$0	$0	$0	$0
Agriculture	$384,766	$0	$239,197	$32,808
Religious/Nonprofit	$0	$0	$0	$0
Government	$0	$780,800	$1,598,000	$222,000
Education	$0	$0	$1,450,000	$290,000
Total	**$4,515,068**	**$4,201,332**	**$7,008,394**	**$1,460,107**

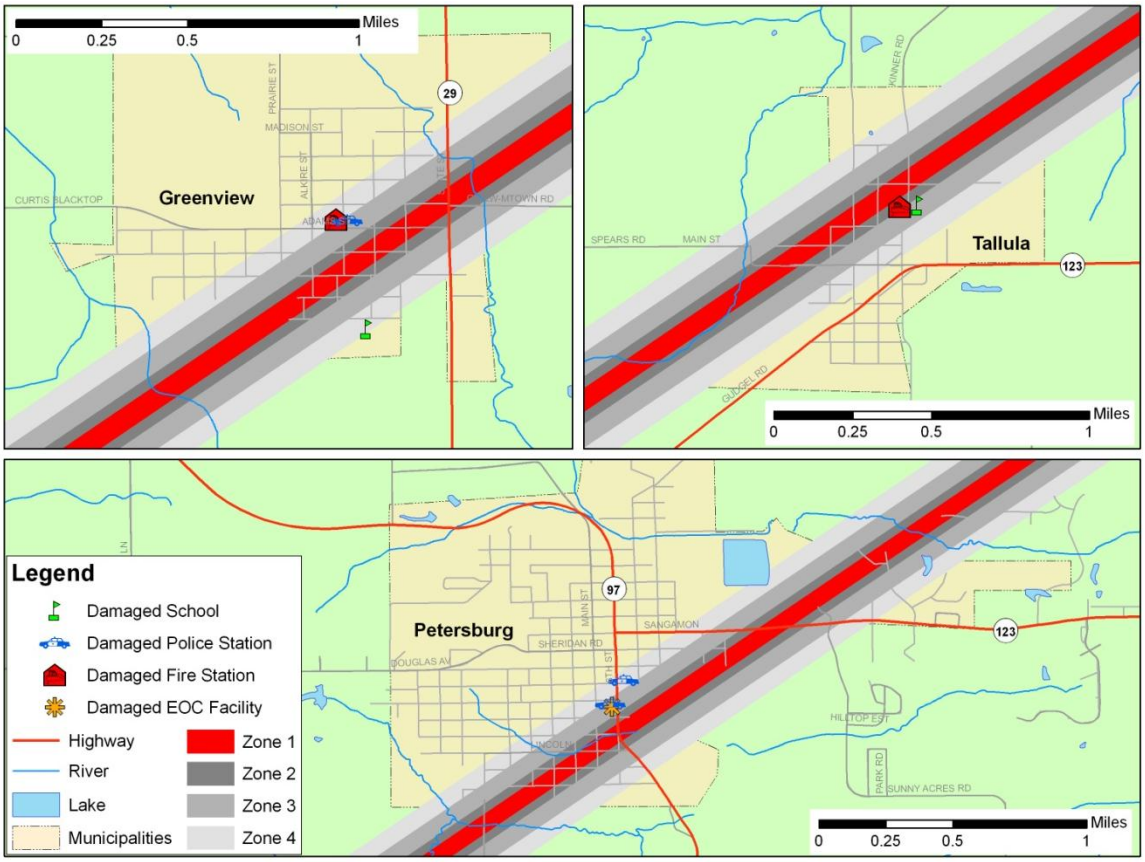
Critical Facilities Damage

There are eight critical facilities located within 900 feet of the hypothetical tornado path. The affected facilities are identified in Table 4-16, and their geographic locations are shown in Figure 4-5.

Table 4-16: Estimated Essential Facilities Affected

Name
Emergency Centers
Menard County 911 Dispatch
Fire Stations
Tallula Fire Department
Greenview Fire Protection District
Police Stations
Petersburg Police Department/Petersburg City Hall
Greenview City Police Department
Menard County Sheriff's Department
School Facilities
Greenview K-12
Tallula Elementary School

Figure 4-5: Essential Facilities within Tornado Path in Greenview, Petersburg, and Tallula



Vulnerability to Future Assets/Infrastructure for Tornado Hazard

The entire population and buildings have been identified as at risk because tornadoes can occur anywhere within the state, at any time of the day, and during any month of the year. Furthermore, any future development in terms of new construction within the county will be at risk. The building exposure for Menard County is included in Table 4-9.

All critical facilities in the county and communities within the county are at risk. A map and list of all critical facilities is included as Appendix F.

Analysis of Community Development Trends

Preparing for severe storms will be enhanced if officials sponsor a wide range of programs and initiatives to address the overall safety of county residents. New structures need to be built with more sturdy construction, and those structures already in place need to be hardened to lessen the potential impacts of severe weather. Community warning sirens to provide warnings of approaching storms are also vital to preventing the loss of property and ensuring the safety of Menard County residents.

4.4.2 Flood Hazard

Hazard Definition for Flooding

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of two types: upstream floods or downstream floods. Both types of floods are common in Illinois.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at anytime of the year in Illinois, but they are most common in the spring and summer months.

Downstream floods, sometimes called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage. Riverine flooding on the large rivers of Illinois generally occurs during either the spring or summer.

Hazard Definition for Dam and Levee Failure

Dams are structures that retain or detain water behind a large barrier. When full or partially full, the difference in elevation between the water above the dam and below creates large amounts of potential energy, creating the potential for failure. The same potential exists for levees when they serve their purpose, which is to confine flood waters within the channel area of a river and exclude that water from land or communities land-ward of the levee. Dams and levees can fail due to either 1) water heights or flows above the capacity for which the structure was designed; or 2) deficiencies in the structure such that it cannot hold back the potential energy of the water. If a dam or levee fails, issues of primary concern include loss of human life/injury, downstream property damage, lifeline disruption (of concern would be transportation routes and utility lines required to maintain or protect life), and environmental damage.

Many communities view both dams and levees as permanent and infinitely safe structures. This sense of security may well be false, leading to significantly increased risks. Both downstream of dams and on floodplains protected by levees, security leads to new construction, added

infrastructure, and increased population over time. Levees in particular are built to hold back flood waters only up to some maximum level, often the 100-year (1% annual probability) flood event. When that maximum is exceeded by more than the design safety margin, the levee will be overtopped or otherwise fail, inundating communities in the land previously protected by that levee. It has been suggested that climate change, land-use shifts, and some forms of river engineering may be increasing the magnitude of large floods and the frequency of levee failure.

In addition to failure that results from extreme floods above the design capacity, levees and dams can fail due to structural deficiencies. Both dams and levees require constant monitoring and regular maintenance to assure their integrity. Many structures across the U.S. have been under-funded or otherwise neglected, leading to an eventual day of reckoning in the form either of realization that the structure is unsafe or, sometimes, an actual failure. The threat of dam or levee failure may require substantial commitment of time, personnel, and resources. Since dams and levees deteriorate with age, minor issues become larger compounding problems, and the risk of failure increases.

Previous Occurrences for Flooding

The NCDC database reported 16 flood events in Menard County since 1994. These flood events have been attributed with one death, two injuries and $51.1 million in property damage. The most recent flood event occurred on September 11, 2008. Showers and thunderstorms caused 2 to 4 inches of rain as the storms repeatedly rolled over the same locations. The heavy rain caused localized flooding and closed Route 97 near Salem State Park in Petersburg.

Menard County NCDC recorded floods are identified in Table 4-17. Additional details for NCDC events are included in Appendix D.

Table 4-17: Menard County Previous Occurrences of Flooding*

Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Central Il	4/12/1994	Flooding	N/A	0	0	50.0M	0
Menard County	5/16/1995	Flash Flood	N/A	0	0	0	0
Menard County	6/1/1995	Flood	N/A	0	0	0	0
Countywide	5/8/1996	Flash Flood	N/A	0	0	1.0M	0
Countywide	4/27/2002	Flash Flood	N/A	0	0	0	0
Menard County	5/12/2002	Flood	N/A	1	0	0	0
Countywide	8/25/2004	Flash Flood	N/A	0	0	0	0
Atterberry	6/3/2008	Flash Flood	N/A	0	0	0	0
Petersburg	6/3/2008	Flash Flood	N/A	0	0	0	0
Athens	7/12/2008	Flash Flood	N/A	0	0	65K	0
New Salem St	7/12/2008	Flash Flood	N/A	0	0	0	0
Petersburg	7/12/2008	Flash Flood	N/A	0	0	0	0
Athens	7/12/2008	Flash Flood	N/A	0	2	40K	0
New Salem St	7/12/2008	Flash Flood	N/A	0	0	0	0
Petersburg	7/12/2008	Flash Flood	N/A	0	0	20K	0
New Salem St	9/11/2008	Flash Flood	N/A	0	0	0	0

* NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Previous Occurrences for Dam and Levee Failure

According to the Menard County planning team, there are no records or local knowledge of any dam or certified levee failure in the county. However, Menard County has recently been made aware that the South Sangamon Drainage & Levee District, located in Cass County, is "Unacceptable" as defined by Public Law (PL 84 99) for maintenance standards of levee systems. Failure of these levees may result in some flooding along the Sangamon River in Menard County. A letter from the Rock Island Corps of Engineers regarding this issue is located in Appendix I.

Agricultural levees along the Sangamon River and Salt Creek have been overtopped or failed during large floods in 1943, 1993, 1994, and 2002.

Repetitive Loss Properties

FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP, which has suffered flood loss damage on two occasions during a 10-year period that ends on the date of the second loss, in which the cost to repair the flood damage is 25% of the market value of the structure at the time of each flood loss.

The Illinois Emergency Management Agency (IEMA) was contacted to determine the location of repetitive loss structures. Table 4-18 lists 2009 data for damages to these repetitive loss structures.

Table 4-18: Menard County Repetitive Loss Structures

Jurisdiction	Occupancy Type	Number of Structures	Number of Losses
Menard County	Single Family	1	2
Menard County	Single Family	1	2

Geographic Location for Flooding

Most river flooding occurs in early spring and is the result of excessive rainfall and/or the combination of rainfall and snowmelt. Severe thunderstorms may cause flooding during the summer or fall, but tend to be localized. The primary source of river flooding in Menard County is the Sangamon River and Salt Creek.

Flash floods, brief heavy flows in small streams or normally dry creek beds, also occur within the county. Flash flooding is typically characterized by high-velocity water, often carrying large amounts of debris. Urban flooding involves the overflow of storm drain systems and is typically the result of inadequate drainage following heavy rainfall or rapid snowmelt.

DFIRM was used to identify specific stream reaches for analysis. The areas of riverine flooding are depicted on the map in Appendix E.

The National Oceanic and Atmospheric Administration (NOAA) Advanced Hydrologic Prediction Service provides information from gauge locations at points along various rivers across the United States. For Menard County, there are stream gages located on the Sangamon River at Petersburg, IL and along the Salt Creek at Greenville, IL. The gage information for these stations are provided in Appendix H.

Geographic Location for Dam and Levee Failure

HAZUS-MH identified three dams in Menard County. The maps in Appendix F show the locations of Menard County dams. Table 4-19 summarizes the dam information.

Table 4-19: National Inventory of Dams

Dam Name	River	Hazard	EAP
Lake Petersburg Dam	Tributary to Sangamon River	H	Y
Country Lake Dam	Halls Branch	L	N
McMann Dam	Tributary to Pike Creek	S	N

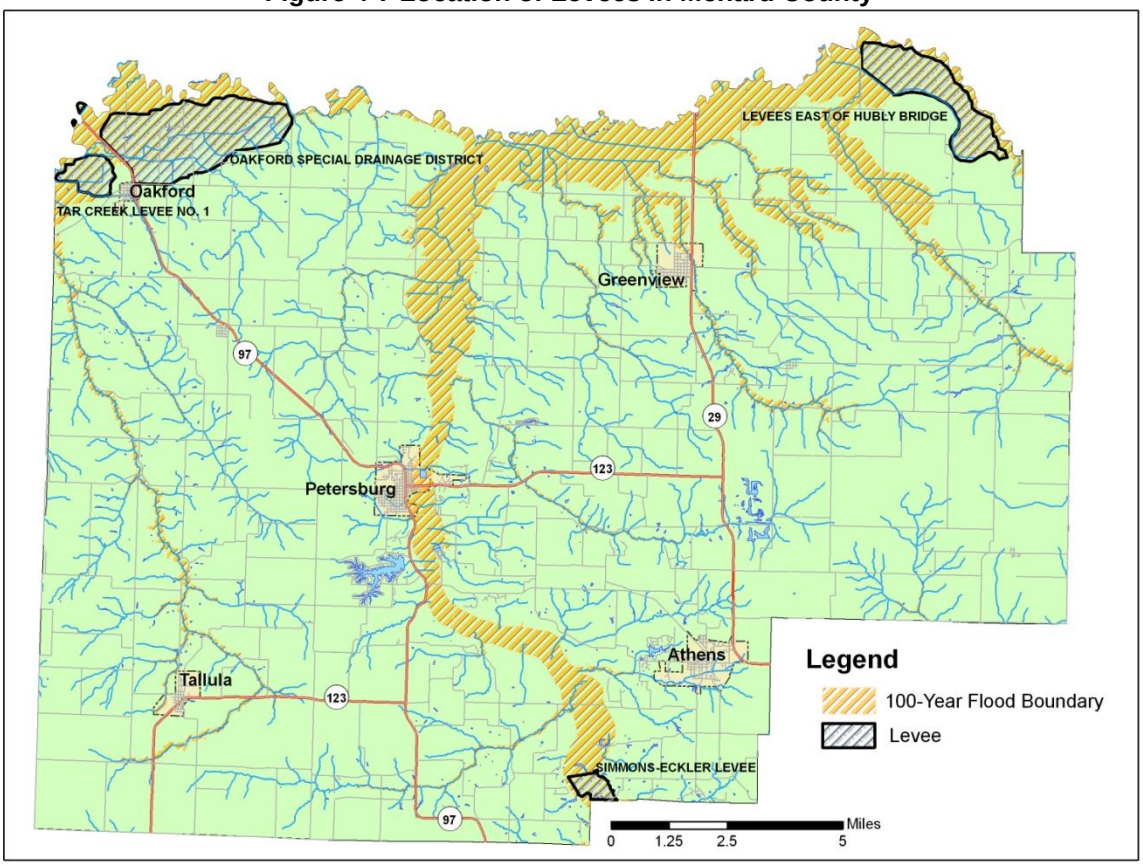
* The dams listed in this multi-hazard mitigation plan are recorded from default HAZUS-MH data. Their physical presences were not confirmed; therefore, new or unrecorded structures may exist. A more complete list of locations is included in Appendix F.

A review of the United States Army Corps of Engineers and local records revealed five levees within Menard County. Four of these levees are located along the Sangamon River and the fifth is located along Salt Creek. These levees all considered agricultural levees which have protection levels that range from the 10 to less than the 100-year flood event and are not intended to protect lives and non-agricultural property. Table 4-20 lists the levees and their approximate locations are shown of Figure 4-7.

Table 4-20: List of Levees in Menard County

Name	River	Sponsorship	Area Protected (Acres)	Protection Level	Certification	
					PL 84 99 (USACE)	FEMA
Levees East of Hubly Bridge	Salt Creek	Private	1,550	10	No	No
Hegret Drainage and Levee District Levee	Sangamon	Hegret Drainage and Levee District	2,709	Unknown	Yes	No
Oakford Special Drainage District Levee	Sangamon	Oakford Special Drainage District	2,600	Unknown	Yes	No
Tar Creek Levee No. 1	Sangamon	Private	450	10	No	No
Simmons-Eckler Levee	Sangamon	Private	250	10	No	No

Figure 4-7 Location of Levees in Menard County



Hazard Extent for Flooding

The HAZUS-MH flood model is designed to generate a flood depth grid and flood boundary polygon by deriving hydrologic and hydraulic information based on user-provided elevation data or by incorporating selected output from other flood models. HAZUS-MH also has the ability to clip a Digital Elevation Model (DEM) with a user-provided flood boundary, thus creating a flood depth grid. For Menard County, HAZUS-MH was used to extract flood depth by clipping the DEM with the IDNR FIRMs Base Flood Elevation (BFE) boundary. The BFE is defined as the area that has a 1% chance of flooding in any given year.

Flood hazard scenarios were modeled using GIS analysis and HAZUS-MH. The flood hazard modeling was based on historical occurrences and current threats. Existing flood maps were used to identify the areas of study. These digital files, although not official FIRMs, provided the boundary which was the basis for this analysis. Planning team input and a review of historical information provided additional information on specific flood events.

Hazard Extent for Dam and Levee Failure

When dams are assigned the low (L) hazard potential classification, it means that failure or incorrect operation of the dam will result in no human life losses and no economic or environmental losses. Losses are principally limited to the owner's property. Dams assigned the significant (S) hazard classification are those dams in which failure or incorrect operation results

in no probable loss of human life; however it can cause economic loss, environment damage, and disruption of lifeline facilities. Dams classified as significant hazard potential dams are often located in predominantly rural or agricultural areas, but could be located in populated areas with a significant amount of infrastructure. Dams assigned the high (H) hazard potential classification are those dams in which failure or incorrect operation has the highest risk to cause loss of human life and significant damage to buildings and infrastructure.

According to default HAZUS-MH data, one dam is classified as high hazard and three dams have Emergency Action Plans (EAP). An EAP is not required by the State of Illinois but is strongly recommended by the Illinois Department of Natural Resources.

Accurate mapping of the risks of flooding behind levees depends on knowing the condition and level of protection the levees actually provide. FEMA and the U.S. Army Corps of Engineers are working together to make sure that flood hazard maps clearly reflect the flood protection capabilities of levees, and that the maps accurately represent the flood risks posed to areas situated behind them. Levee owners—usually states, communities, or in some cases private individuals or organizations—are responsible for ensuring that the levees they own are maintained according to their design. In order to be considered creditable flood protection structures on FEMA's flood maps, levee owners must provide documentation to prove the levee meets design, operation, and maintenance standards for protection against the one-percent-annual chance flood.

Risk Identification for Flood Hazard

Based on historical information and the HAZUS-MH flooding analysis results, future occurrence of flooding in Menard County is highly likely. According to the Risk Priority Index (RPI), flooding is ranked as the number two hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
4	x	2	=	8

Risk Identification for Dam/Levee Failure

Based on operation and maintenance requirements and local knowledge of the dams in Menard County, the occurrence of a dam or levee failure is possible. However, if a high hazard dam were to fail, the magnitude and severity of the damage could be great. The warning time and duration of the dam failure event would be very short. According to the RPI, dam and levee failure ranked as the number seven hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
2	x	2	=	4

HAZUS-MH Analysis Using 100-Year Flood Boundary and County Parcels

HAZUS-MH generated the flood depth grid for a 100-year return period by clipping the USGS 1/3 ArcSecond (approximately 10 meters) Digital Elevation Model (DEM) to the Menard County flood boundary. Next, HAZUS-MH utilized a user-defined analysis of Menard County with site-specific parcel data provided by the county.

HAZUS-MH estimates the 100-year flood would damage 361 buildings at a cost of $16.2 million. The total estimated numbers of damaged buildings are given in Table 4-21. Figure 4-8 depicts the Menard County parcel points that fall within the 100-year floodplain. Figure 4-9 highlights damaged buildings within the floodplain areas of Greenview and Petersburg.

Table 4-21: Menard County HAZUS-MH Building Damage

General Occupancy	Number of Buildings Damaged	Total Building Damage
Residential	168	$3,352,497
Commercial	51	$7,514,811
Industrial	0	$0
Agricultural	140	$5,346,920
Religious/Nonprofit	1	$0
Government	1	$0
Education	0	$0
Total	**361**	**$16,214,228**

Figure 4-8: Menard County Buildings in Floodplain (100-Year Flood)

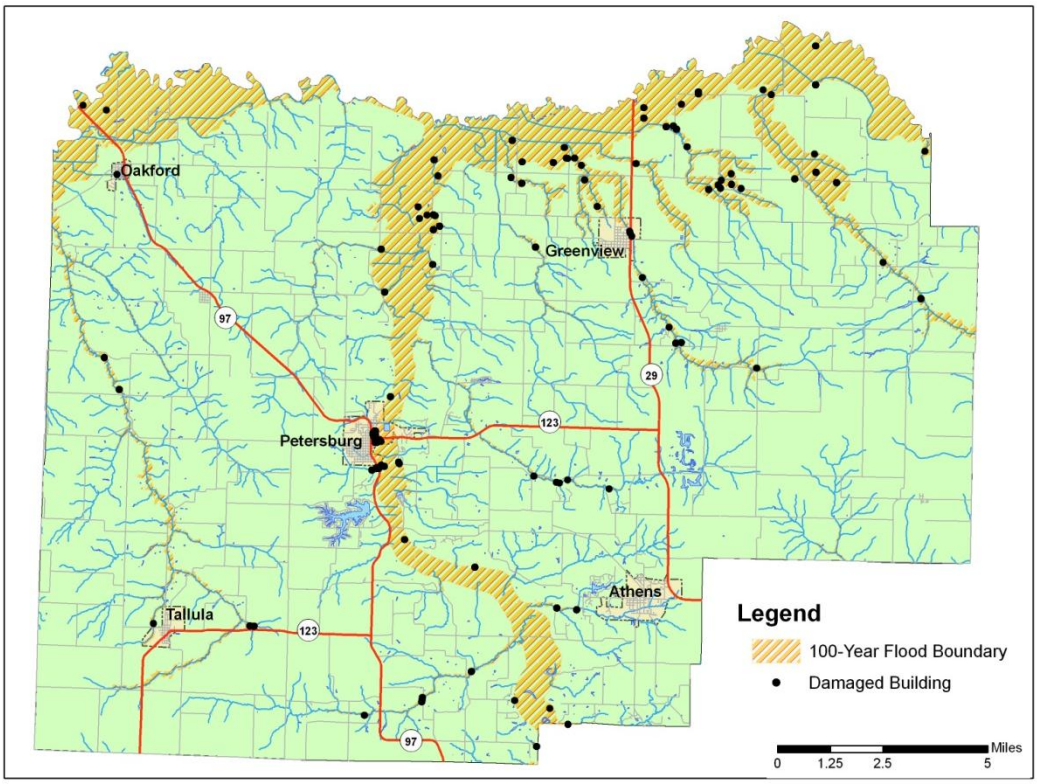
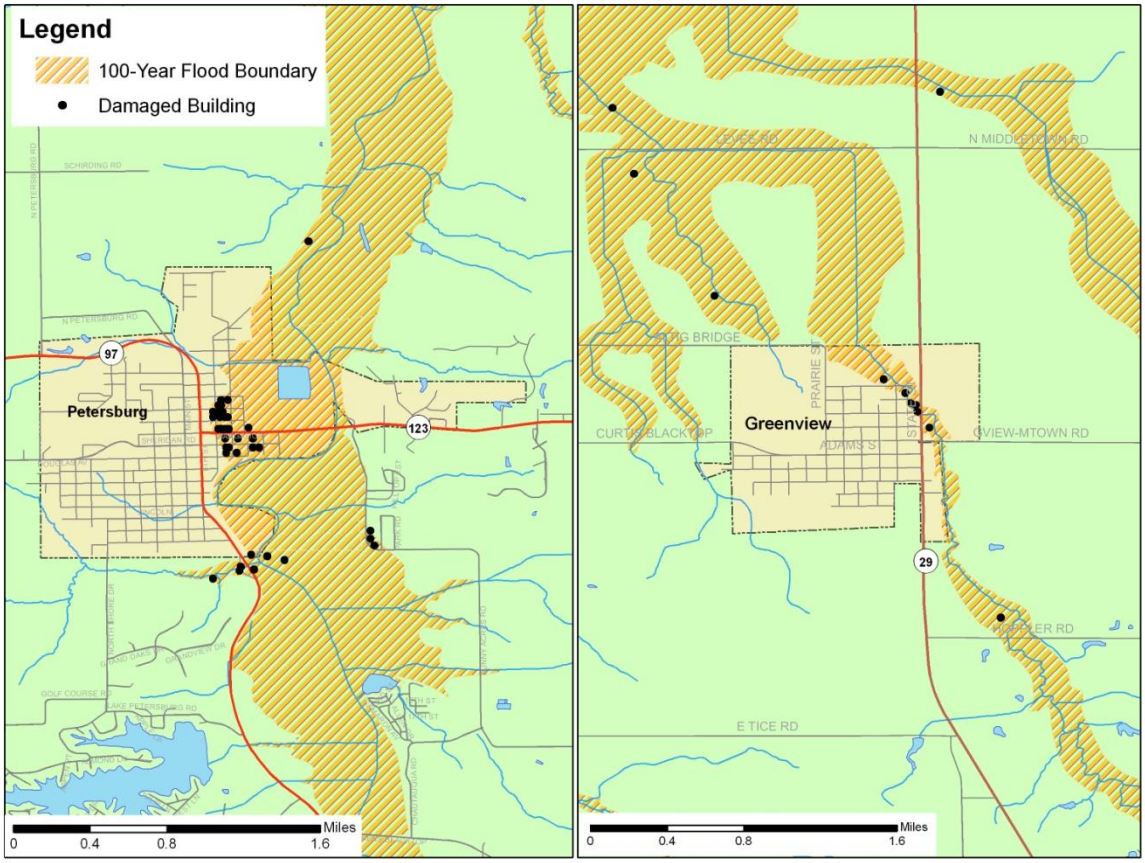


Figure 4-9: Menard County Urban Flood-Prone Areas: Petersburg and Greenview (100-Year Flood)

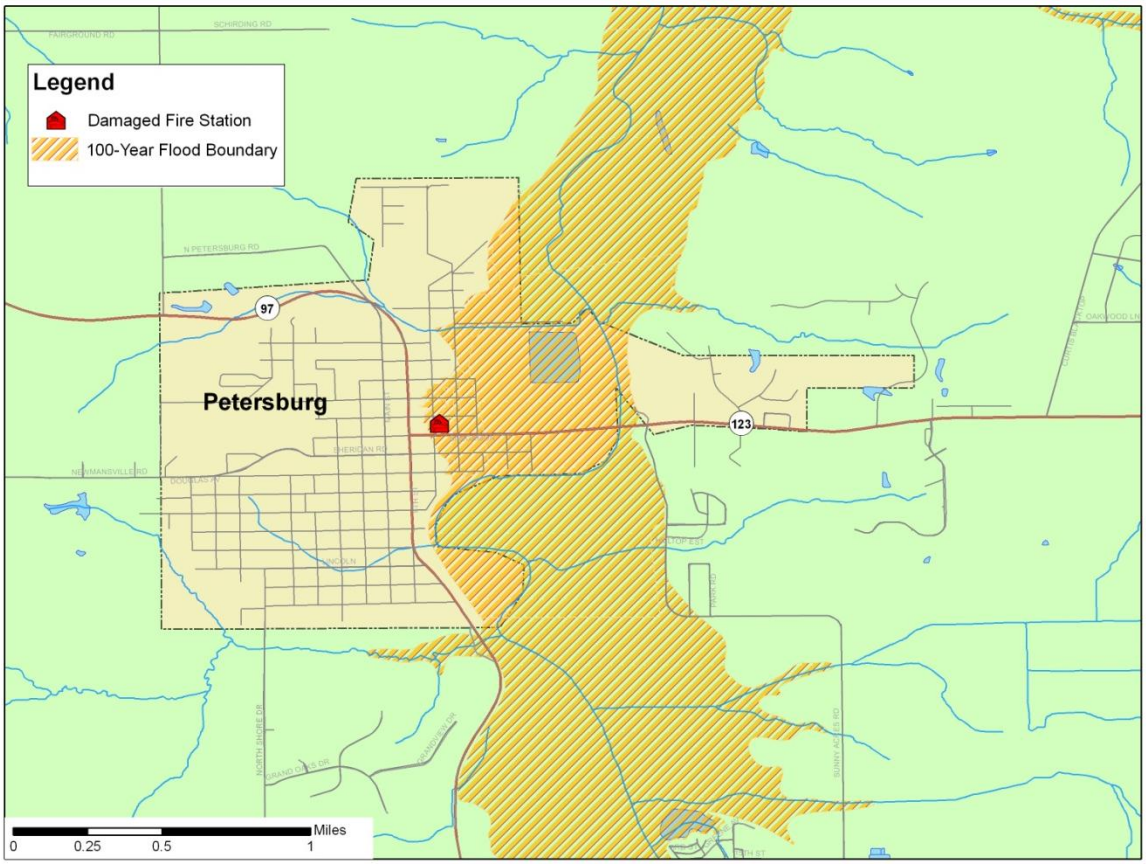


Critical Facilities

A critical facility will encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). A map and list of all critical facilities is included as Appendix F.

The analysis identified the Petersburg Fire Station as the only critical facility subject to flooding. Figure 4-10 shows the location of the vulnerable Station.

Figure 4-10: Boundary of 100-Year Flood Overlaid with Critical Facilities



Infrastructure

The types of infrastructure that could be impacted by a flood include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available for this plan, it is important to emphasize that any number of these items could become damaged in the event of a flood. The impacts to these items include broken, failed, or impassable roadways; broken or failed utility lines (e.g. loss of power or gas to community); or railway failure from broken or impassable railways. Bridges could also fail or become impassable, causing traffic risks.

Vulnerability Analysis for Flash Flooding

Flash flooding could affect any low lying location within this jurisdiction; therefore, a significant portion of county's population and buildings are vulnerable to a flash flood. These structures can expect the same impacts as discussed in a riverine flood.

A map and list of all critical facilities is included as Appendix F.

Vulnerability Analysis for Dam and Levee Failure

An EAP is required to assess the effect of dam failure on these communities. In order to be considered creditable flood protection structures on FEMA's flood maps, levee owners must provide documentation to prove the levee meets design, operation, and maintenance standards for protection against the "one-percent-annual chance" flood.

Vulnerability to Future Assets/Infrastructure for Flooding

Flash flooding could affect any low lying location within this jurisdiction; therefore, a significant portion of county's population and buildings are vulnerable to a flash flood. Menard County, and its jurisdictions which participate in the National Flood Insurance Program, reviews new developments for compliance with their local zoning ordinances. At this time no construction is planned within the area of the 100-year floodplain.

Vulnerability to Future Assets/Infrastructure for Dam and Levee Failure

The Menard County planning commission and its incorporated jurisdictions reviews new development for compliance with the local zoning ordinance.

Analysis of Community Development Trends

Controlling floodplain development is the key to reducing flood-related damages. Areas with recent development within the county may be more vulnerable to drainage issues. Storm drains and sewer systems are usually most susceptible. Damage to these can cause the back up of water, sewage, and debris into homes and basements, causing structural and mechanical damage as well as creating public health hazards and unsanitary conditions.

4.4.3 Earthquake Hazard

Hazard Definition for Earthquake Hazard

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped Earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake.

Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates, as is the case for seismic zones in the Midwestern United States. The most seismically active area in the Midwest is the New Madrid Seismic Zone. Scientists have learned that the New Madrid fault system may not be the only fault system in the Central U.S. capable of producing damaging earthquakes. The Wabash Valley fault system in Illinois and Indiana shows evidence of large earthquakes in its geologic history, and there may be other, as yet unidentified, faults that could produce strong earthquakes.

Ground shaking from strong earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area it may cause deaths, injuries, and extensive property damage.

The possibility of the occurrence of a catastrophic earthquake in the central and eastern United States is real as evidenced by history and described throughout this section. The impacts of significant earthquakes affect large areas, terminating public services and systems needed to aid the suffering and displaced. These impaired systems are interrelated in the hardest struck zones. Power lines, water and sanitary lines, and public communication may be lost; and highways, railways, rivers, and ports may not allow transportation to the affected region. Furthermore, essential facilities, such as fire and police departments and hospitals, may be disrupted if not previously improved to resist earthquakes.

As with hurricanes, mass relocation may be necessary, but the residents who are suffering from the earthquake can neither leave the heavily impacted areas nor receive aid or even communication in the aftermath of a significant event.

Magnitude, which is determined from measurements on seismographs, measures the energy released at the source of the earthquake. Intensity measures the strength of shaking produced by the earthquake at a certain location and is determined from effects on people, human structures, and the natural environment. Tables 4-22 and 4-23 list earthquake magnitudes and their corresponding intensities.

Source: http://earthquake.usgs.gov/learning/topics/mag_vs_int.php

Table 4-22: Abbreviated Modified Mercalli Intensity Scale

Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Table 4-23: Earthquake Magnitude vs. Modified Mercalli Intensity Scale

Earthquake Magnitude	Typical Maximum Modified Mercalli Intensity
1.0 - 3.0	I
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - IX
7.0 and higher	VIII or higher

Previous Occurrences for Earthquake Hazard

Numerous instrumentally measured earthquakes have occurred in Illinois. In the past few decades, with many precise seismographs positioned across Illinois, measured earthquakes have varied in magnitude from very low microseismic events of M=1−3 to larger events up to M=5.4. Microseismic events are usually only detectable by seismographs and rarely felt by anyone. The most recent earthquake in northern-central Illinois—as of the date of this report—occurred on February 10, 2010 at 3:59:35 local time about 3.0 km (2 miles) east-northeast of Virgil, IL and measured 3.8 in magnitude.

The consensus of opinion among seismologists working in the Midwest is that a magnitude 5.0 to 5.5 event could occur virtually anywhere at any time throughout the region. Earthquakes occur in Illinois all the time, although damaging quakes are very infrequent. Illinois earthquakes causing minor damage occur on average every 20 years, although the actual timing is extremely variable. Most recently, a magnitude 5.2 earthquake shook southeastern Illinois on April 18,

2008, causing minor damage in the Mt Carmel, IL area. Earthquakes resulting in more serious damage have occurred about every 70 to 90 years mainly in Southern Illinois.

Seismic activity on the New Madrid Seismic Zone of southeastern Missouri is very significant both historically and at present. On December 16, 1811 and January 23 and February 7 of 1812, three earthquakes struck the central U.S. with magnitudes estimated to be 7.5-8.0. These earthquakes caused violent ground cracking and volcano-like eruptions of sediment *(sand blows)* over an area of >10,500 km^2, and uplift of a 50 km by 23 km zone (the Lake County uplift). The shaking collapsed scaffolding on the Capitol in Washington, D.C., and shaking was felt over a total area of over 10 million km^2 (the largest felt area of any historical earthquake). Of all the historical earthquakes that have struck the U.S., an 1811-style event would do the most damage if it recurred today.

The New Madrid earthquakes are especially noteworthy because the seismic zone is in the center of the North American Plate. Such intraplate earthquakes are felt, and do damage, over much broader areas than comparable earthquakes at plate boundaries. The precise driving force responsible for activity on the New Madrid seismic zone is not known, but most scientists infer that it is compression transmitted across the North American Plate. That compression is focused on New Madrid because it is the site of a Paleozoic structure—the Reelfoot Rift—which is a zone of weakness in the crust.

The United States Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) at the University of Memphis estimate the probability of a repeat of the 1811–1812 type earthquakes (magnitude 7.5–8.0) is 7%–10% over the next 50 years (*USGS Fact Sheet 2006-3125*.) Frequent large earthquakes on the New Madrid seismic zone are geologically puzzling because the region shows relatively little deformation. Three explanations have been proposed: 1) recent seismological and geodetic activity is still a short-term response to the 1811–12 earthquakes; 2) activity is irregular or cyclic; or 3) activity began only in the recent geologic past. There is some dispute over how often earthquakes like the 1811–12 sequence occur. Many researchers estimate a recurrence interval of between 550 and 1100 years; other researchers suggest that either the magnitude of the 1811–12 earthquakes have been over-stated, or else the actual frequency of these events is less. It is fair to say, however, that even if the 1811–12 shocks were just magnitude ~7 events, they nonetheless caused widespread damage and would do the same if another such earthquake or earthquake sequence were to strike today.

[Above: New Madrid earthquakes and seismic zone modified from N. Pinter, 1993, Exercises in Active Tectonic history adapted from *Earthquake Information Bulletin*, 4(3), May-June 1972. *http://earthquake.usgs.gov/regional/states/illinois/history.php*]

The earliest reported earthquake in Illinois was in **1795**. This event was felt at Kaskaskia, IL for a minute and a half and was also felt in Kentucky. At Kaskaskia, subterranean noises were heard. Due to the sparse frontier population, an accurate location is not possible, and the shock may have actually originated outside the state.

An intensity VI-VII earthquake occurred on **April 12, 1883**, awakening several people in Cairo, IL. One old frame house was significantly damaged, resulting in minor injuries to the inhabitants. This is the only record of injury in the state due to earthquakes.

On **October 31, 1895** a large M6.8 occurred at Charleston, Missouri, just south of Cairo. Strong shaking caused eruptions of sand and water at many places along a line roughly 30 km (20 mi) long. Damage occurred in six states, but most severely at Charleston, with cracked walls, windows shattered, broken plaster, and chimneys fallen. Shaking was felt in 23 states from Washington, D.C. to Kansas and from southernmost Canada to New Orleans, LA.

A Missouri earthquake on **November 4, 1905**, cracked walls in Cairo. Aftershocks were felt over an area of 100,000 square miles in nine states. In Illinois, it cracked the wall of the new education building in Cairo and a wall at Carbondale, IL.

Among the largest earthquakes occurring in Illinois was the **May 26, 1909** shock, which knocked over many chimneys at Aurora. It was felt over 500,000 square miles and strongly felt in Iowa and Wisconsin. Buildings swayed in Chicago where there was fear that the walls would collapse. Just under two months later, a second Intensity VII earthquake occurred on **July 18, 1909**, damaged chimneys in Petersburg, IL, Hannibal, MO, and Davenport, IA. Over twenty windows were broken, bricks loosened and plaster cracked in the Petersburg area. This event was felt over 40,000 square miles.

On **November 7, 1958**, a shock along the Indiana border resulted in damage at Bartelso, Dale and Maunie, IL. Plaster cracked and fell, and a basement wall and floor were cracked.

On **August 14, 1965**, a sharp but local shock occurred at Tamms, IL, a town of about 600 people. The magnitude 5 quake damaged chimneys, cracked walls, knocked groceries from the shelves, and muddied the water supply. Thunderous earth noises were heard. This earthquake was only felt within a 10 mile radius of Tamms, in communities such as Elco, Unity, Olive Branch, and Olmsted, IL. Six aftershocks were felt.

An earthquake of Intensity VII occurred on **November 9, 1968**. This magnitude 5.3 shock was felt over an area of 580,000 square miles in 23 states. There were reports of people in tall buildings in Ontario and Boston feeling the shock. Damage consisted of bricks being knocked from chimneys, broken windows, toppled television antenna, and cracked plaster. There were scattered reports of cracked foundations, fallen parapets, and overturned tombstones. Chimney damage was limited to buildings 30 to 50 years old. Many people were frightened. Church bells rang at Broughton and several other towns. Loud rumbling earthquake noise was reported in many communities.

Dozens of other shocks originating in Missouri, Arkansas, Kansas, Nebraska, Tennessee, Indiana, Ohio, Michigan, Kentucky, and Canada have been felt in Illinois without causing damage. There have been three earthquakes slightly greater than magnitude 5.0 and Intensity level VII which occurred in 1968, 1987 and 2008 and that were widely felt throughout southern Illinois and the midcontinent.

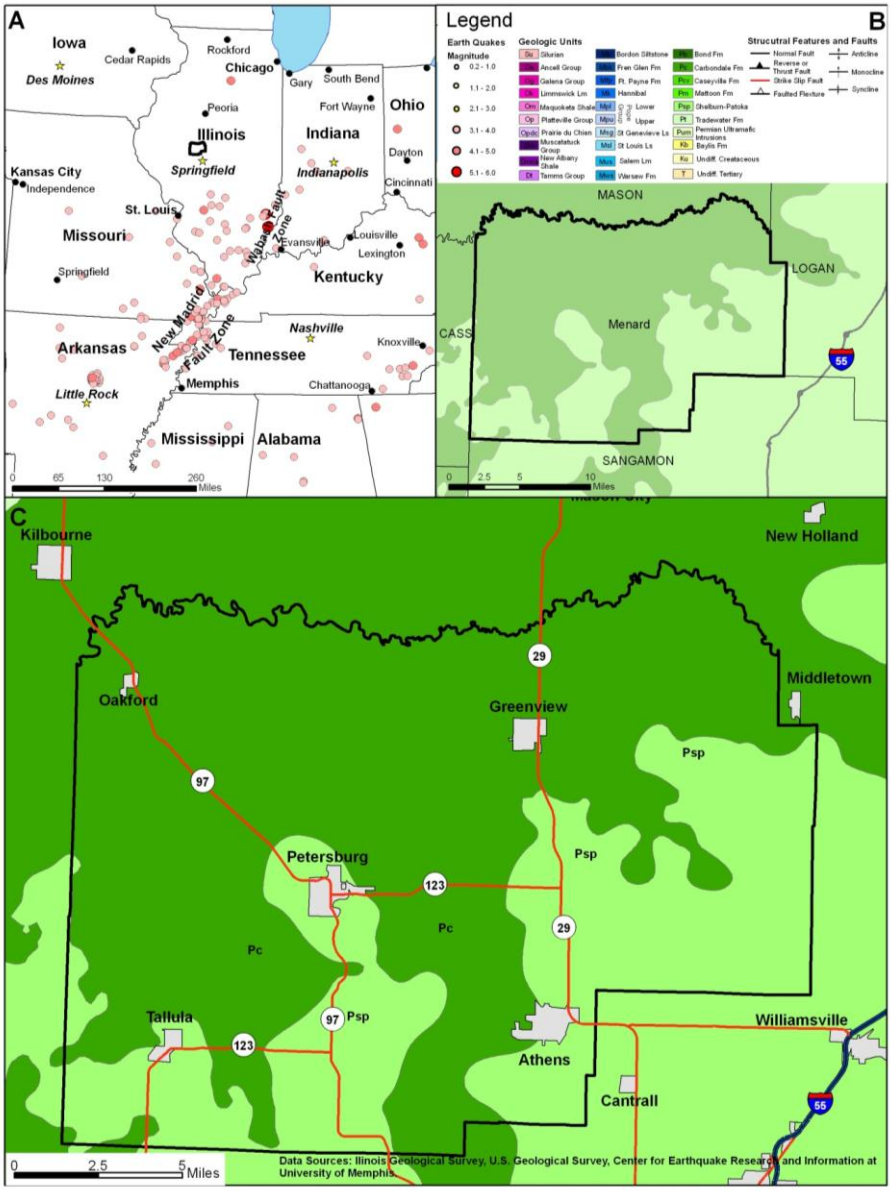
Above text adapted from *http://earthquake.usgs.gov/regional/states/illinois/history.php* and from *Seismicity of the United States, 1568-1989 (Revised), C.W. Stover and J.L. Coffman, U.S. Geological Survey Professional Paper 1527, United States Government Printing Office, Washington: 1993.*

Geographic Location for Earthquake Hazard

Within Illinois, the two most significant zones of seismic activity are the New Madrid Seismic Zone and the Wabash Valley Fault System. Since 1974, when instrumental recordings of earthquakes began in the Central US, there is no record of an earthquake epicenter in Menard County. Menard County is located approximately 250 miles from the New Madrid Fault System and 150 miles away from the Wabash Valley Fault System.

Figure 4-11 depicts the following: a) Location of notable earthquakes in the Illinois region with inset of Menard County; b) Generalized geologic bedrock map with earthquake epicenters, geologic structures, and inset of Menard County; c) Geologic and earthquake epicenter map of Menard County.

Figure 4-11 a, b, c: Menard County Earthquakes



Hazard Extent for Earthquake Hazard

The extent of the earthquake is countywide. One of the most critical sources of information that is required for accurate assessment of earthquake risk is soils data. A National Earthquake Hazards Reduction Program (NEHRP) compliant soils map was used for the analysis which was provided by FEMA. The map identifies the soils most susceptible to failure.

Risk Identification for Earthquake Hazard

Based on historical information as well as current USGS and SIU research and studies, future earthquakes in Menard County are possible but, large earthquakes which would cause severe to catastrophic damage in the County are unlikely. Severe to catastrophic earthquake damage is unlikely because of the large distance (>200 miles) between Menard County and nearest the major seismic zones, the New Madrid Seismic Zone and the Wabash Valley Fault Zone. According to the Menard County planning team's RPI, earthquakes are ranked as the number nine hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
1	x	4	=	4

Vulnerability Analysis for Earthquake Hazard

This hazard could impact the entire jurisdiction equally; therefore, the entire county's population and all buildings are vulnerable to an earthquake and can expect the same impacts within the affected area. To accommodate this risk, this plan will consider all buildings located within the county as vulnerable.

Critical Facilities

All critical facilities are vulnerable to earthquakes. A critical facility would encounter many of the same impacts as any other building within the county. These impacts include structural failure and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). A map and list of all critical facilities is included as Appendix F.

Building Inventory

A table of the building exposure in terms of types and numbers of buildings for the entire county is listed in Table 4-9. The buildings within the county can all expect the same impacts, similar to those discussed for critical facilities. These impacts include structural failure and loss of building function which could result in indirect impacts (e.g. damaged homes will no longer be habitable causing residents to seek shelter).

Infrastructure

During an earthquake, the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available to this plan, it is important to emphasize that any number of these items could become damaged in the event of an earthquake. The impacts to these items include broken, failed, or impassable roadways, broken or failed utility lines (e.g. loss of power or gas to community), and railway failure from broken or impassable railways. Bridges could also fail or become impassable causing traffic risks. Typical scenarios are described to gauge the anticipated impacts of earthquakes in the county in terms of numbers and types of buildings and infrastructure.

The SIU-Polis team reviewed existing geological information and recommendations for earthquake scenarios. A deterministic and a probabilistic earthquake scenario were developed to provide a reasonable basis for earthquake planning in Menard County. The deterministic scenario was a moment magnitude of 5.5 with the epicenter near the City of Petersburg in Menard County. This represents a realistic scenario for planning purposes.

Additionally, the earthquake loss analysis included a probabilistic scenario based on ground shaking parameters derived from U.S. Geological Survey probabilistic seismic hazard curves for the earthquake with the 500-year return period. This scenario evaluates the average impacts of a multitude of possible earthquake epicenters with a magnitude that would be typical of that expected for a 500-year return period.

The following earthquake hazard modeling scenarios were performed:

- 5.5 magnitude earthquake local epicenter
- 500-year return period event

Modeling a deterministic scenario requires user input for a variety of parameters. One of the most critical sources of information that is required for accurate assessment of earthquake risk is soils data. Fortunately, a National Earthquake Hazards Reduction Program (NEHRP) soil classification map exists for Illinois. NEHRP soil classifications portray the degree of shear-wave amplification that can occur during ground shaking. FEMA provided a soils map and liquefaction potential map that was used by HAZUS-MH.

Earthquake hypocenter depths in Illinois range from less than 1.0 to ~25.0 km. The average hypocenter depth, ~10.0 km, was used for the deterministic earthquake scenario. For this scenario type HAZUS-MH also requires the user to define an attenuation function. To maintain consistency with the USGS's (2006) modeling of strong ground motion in the central United States, the Toro et al. (1997) attenuation function was used for the deterministic earthquake scenario.

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the

earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

Results for 5.5 Magnitude Earthquake in Menard County

The results of the initial analysis, the 5.5 magnitude earthquake with an epicenter near the City of Petersburg, are depicted in Tables 4-24 and 4-25 and Figure 4-12. HAZUS estimates that approximately 911 buildings will be at least moderately damaged. This is more than 13% of the total number of buildings in the region. It is estimated that 36 buildings will be damaged beyond repair.

The total building related losses totaled $63.7 million; 14% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies, which comprised more than 68% of the total loss.

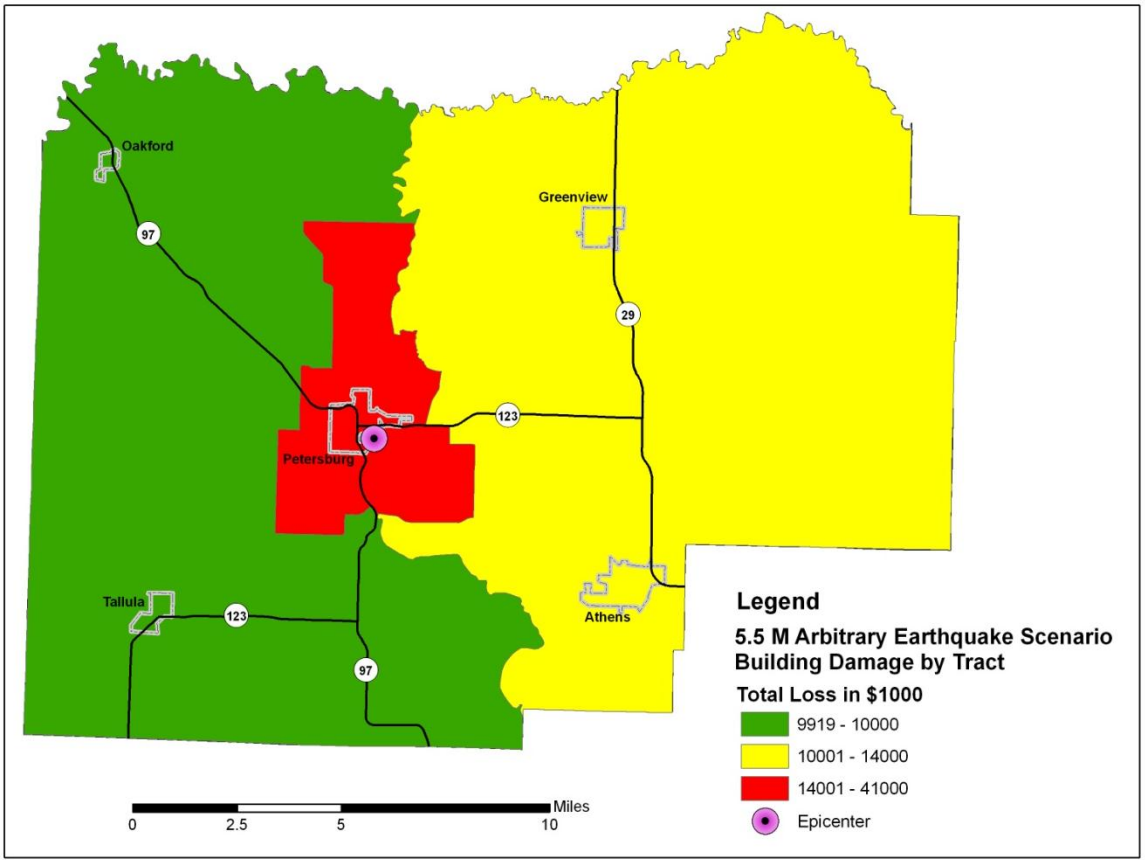
Table 4-24: Menard County 5.5M Scenario-Damage Counts by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	13	0.28	5	0.34	5	0.67	2	1.08	0	0.83
Commercial	89	1.90	36	2.44	29	4.13	10	5.94	2	5.27
Education	6	0.13	2	0.13	2	0.22	1	0.30	0	0.36
Government	7	0.15	3	0.18	2	0.32	1	0.39	0	0.45
Industrial	26	0.56	9	0.60	7	1.03	3	1.47	0	1.10
Other Residential	1,514	32.23	496	34.06	270	38.25	62	36.10	12	32.35
Religion	14	0.30	5	0.35	4	0.55	1	0.82	0	0.85
Single Family	3,026	64.44	902	61.90	386	54.82	92	53.90	21	58.79
Total	**4,696**		**1,457**		**705**		**171**		**36**	

Table 4-25: Menard County 5.5M Scenario-Building Economic Losses in Millions of Dollars

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	0.18	1.17	0.05	0.12	1.53
	Capital-Related	0.00	0.08	1.19	0.03	0.04	1.34
	Rental	0.69	0.38	0.61	0.02	0.07	1.77
	Relocation	2.54	0.33	0.86	0.10	0.61	4.45
	Subtotal	**3.23**	**0.98**	**3.84**	**0.19**	**0.84**	**9.09**
Capital Stock Loses							
	Structural	4.20	0.69	1.07	0.25	0.86	7.08
	Non_Structural	19.36	3.97	4.04	1.23	2.34	30.94
	Content	9.32	1.43	2.79	0.93	1.72	16.19
	Inventory	0.00	0.00	0.08	0.20	0.07	0.35
	Subtotal	**32.89**	**6.09**	**7.99**	**2.61**	**4.99**	**54.56**
	Total	**36.12**	**7.07**	**11.82**	**2.80**	**5.84**	**63.65**

Figure 4-12: Menard County 5.5M Scenario-Building Economic Losses in Thousands of Dollars



Results 500-Year Probabilistic Scenario

The results of the 500-year probabilistic analysis are depicted in Tables 4-26 and 4-27. HAZUS-MH estimates that approximately 78 buildings will be at least moderately damaged. This is approximately 1% of the total number of buildings in the region. The total building-related losses totaled $2.27 million; 28% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies, which made up more than 65% of the total loss.

Table 4-26: 500-Year Probabilistic Scenario-Damage Counts by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	23	0.34	1	0.57	1	0.81	0	0.97	0	0.53
Commercial	154	2.28	8	3.66	3	4.51	0	5.32	0	3.44
Education	9	0.14	1	0.23	0	0.30	0	0.35	0	0.37
Government	12	0.18	1	0.25	0	0.30	0	0.31	0	0.31
Industrial	42	0.62	2	0.99	1	1.29	0	1.50	0	0.78
Other Residential	2,233	33.05	88	38.47	29	41.68	3	32.07	0	30.07
Religion	23	0.34	1	0.52	0	0.69	0	0.86	0	0.74
Single Family	4,261	63.06	127	55.32	35	50.42	5	58.61	1	63.77
Total	**6,757**		**229**		**69**		**9**		**1**	

Table 4-27: 500-Year Probabilistic Scenario-Building Economic Losses in Millions of Dollars

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	0.01	0.08	0.00	0.01	0.10
	Capital-Related	0.00	0.00	0.08	0.00	0.00	0.09
	Rental	0.05	0.02	0.05	0.00	0.00	0.13
	Relocation	0.18	0.03	0.06	0.01	0.04	0.32
	Subtotal	**0.23**	**0.06**	**0.27**	**0.01**	**0.06**	**0.64**
Capital Stock Loses							
	Structural	0.31	0.05	0.08	0.02	0.07	0.52
	Non_Structural	0.61	0.10	0.11	0.03	0.07	0.92
	Content	0.10	0.01	0.04	0.01	0.02	0.19
	Inventory	0.00	0.00	0.00	0.00	0.00	0.01
	Subtotal	**1.03**	**0.16**	**0.22**	**0.06**	**0.16**	**1.64**
	Total	**1.26**	**0.22**	**0.49**	**0.08**	**0.22**	**2.27**

Vulnerability to Future Assets/Infrastructure for Earthquake Hazard

New construction, especially critical facilities, will accommodate earthquake mitigation design standards.

Analysis of Community Development Trends

Community development will occur outside of the low-lying areas in floodplains with a water table within five feet of grade that is susceptible to liquefaction.

In Meeting #4, the MHMP team discussed specific mitigation strategies for potential earthquake hazards. The discussion included strategies to harden and protect future, as well as existing, structures against the possible termination of public services and systems including power lines, water and sanitary lines, and public communication.

4.4.4 Thunderstorm Hazard

Hazard Definition for Thunderstorm Hazard

Severe thunderstorms are defined as thunderstorms with one or more of the following characteristics: strong winds, large damaging hail, or frequent lightning. Severe thunderstorms most frequently occur in Illinois during the spring and summer months, but can occur any month of the year at any time of day. A severe thunderstorm's impacts can be localized or can be widespread in nature. A thunderstorm is classified as severe when it meets one or more of the following criteria.

- Hail of diameter 0.75 inches or higher
- Frequent and dangerous lightning
- Wind speeds equal to or greater than 58 miles per hour

Hail

Hail is a product of a strong thunderstorm. Hail usually falls near the center of a storm, however strong winds occurring at high altitudes in the thunderstorm can blow the hailstones away from the storm center, resulting in damage in other areas near the storm. Hailstones range from pea-sized to baseball-sized, but hailstones larger than softballs have been reported on rare occasions.

Lightning

Lightning is a discharge of electricity from a thunderstorm. Lightning is often perceived as a minor hazard, but in reality lightning causes damage to many structures and kills or severely injures numerous people in the United States each year.

Severe Winds (Straight-Line Winds)

Straight-line winds from thunderstorms are a fairly common occurrence across Illinois. Straight-line winds can cause damage to homes, businesses, power lines, and agricultural areas, and may require temporary sheltering of individuals who are without power for extended periods of time.

Previous Occurrences for Thunderstorm Hazard

The NCDC database reported 48 hail storms in Menard County since 1966. Hail storms occur nearly every year in the late spring and early summer months. The most recent reported occurrence was in May 2009 when a large complex of thunderstorms produced large hail, heavy rainfall, and flash flooding throughout north and central Illinois.

Menard County hail storms are identified in Table 4-28. Additional details for NCDC events are included in Appendix D.

Table 4-28: Menard County Hail Storms*

Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Menard County	3/21/1966	Hail	2.00 in.	0	0	0	0
Menard County	4/13/1981	Hail	1.75 in.	0	0	0	0
Menard County	4/16/1982	Hail	1.75 in.	0	0	0	0
Menard County	4/30/1986	Hail	1.00 in.	0	0	0	0
Menard County	5/6/1986	Hail	0.88 in.	0	0	0	0
Menard County	6/14/1986	Hail	1.75 in.	0	0	0	0
Menard County	7/10/1986	Hail	0.75 in.	0	0	0	0
Menard County	12/8/1991	Hail	2.50 in.	0	0	0	0
Petersburg	7/20/1994	Hail	1.75 in.	0	0	0	0
Petersburg	5/16/1995	Hail	0.75 in.	0	0	0	0
Greenview	7/28/1996	Hail	2.00 in.	0	0	0	0
Athens	3/28/1997	Hail	1.75 in.	0	0	0	0
Petersburg	8/24/1997	Hail	1.75 in.	0	0	0	0
Oakford	5/12/1998	Hail	1.75 in.	0	0	0	0
Athens	10/29/1998	Hail	0.75 in.	0	0	0	0
Petersburg	5/12/2000	Hail	1.25 in.	0	0	0	0
Petersburg	8/26/2000	Hail	1.25 in.	0	0	0	0
Oakford	4/5/2001	Hail	0.75 in.	0	0	0	0
Atterberry	8/18/2001	Hail	1.00 in.	0	0	0	0
Petersburg	5/1/2002	Hail	1.00 in.	0	0	0	0
Fancy Prairie	5/7/2002	Hail	1.00 in.	0	0	0	0
Petersburg	6/1/2002	Hail	0.75 in.	0	0	0	0
Greenview	8/16/2002	Hail	0.75 in.	0	0	0	0
Oakford	2/3/2003	Hail	0.88 in.	0	0	0	0
Oakford	4/4/2003	Hail	1.50 in.	0	0	0	0
Oakford	4/4/2003	Hail	2.00 in.	0	0	0	0
Petersburg	4/4/2003	Hail	1.50 in.	0	0	0	0
Petersburg	4/30/2003	Hail	0.75 in.	0	0	0	0
Petersburg	5/9/2003	Hail	1.75 in.	0	0	0	0
Greenview	5/2/2004	Hail	0.75 in.	0	0	0	0
Petersburg	5/24/2004	Hail	0.88 in.	0	0	0	0
Greenview	5/30/2004	Hail	1.00 in.	0	0	0	0
Tallula	8/25/2004	Hail	1.00 in.	0	0	0	0
Tallula	9/19/2005	Hail	0.75 in.	0	0	0	0
Petersburg	11/5/2005	Hail	0.88 in.	0	0	0	0
Tallula	3/11/2006	Hail	0.88 in.	0	0	0	0
Tallula	4/7/2006	Hail	1.75 in.	0	0	0	0
Petersburg	4/14/2006	Hail	1.25 in.	0	0	0	0
Petersburg	1/29/2008	Hail	0.88 in.	0	0	0	0
Oakford	6/3/2008	Hail	1.00 in.	0	0	0	0
Athens	6/22/2008	Hail	0.75 in.	0	0	0	0
Petersburg	7/21/2008	Hail	1.00 in.	0	0	0	0
Petersburg	5/7/2009	Hail	0.88 in.	0	0	0	0
Petersburg	5/7/2009	Hail	0.88 in.	0	0	0	0

Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Petersburg	5/15/2009	Hail	0.75 in.	0	0	0	0
Greenview	5/15/2009	Hail	1.25 in.	0	0	0	0
Athens	5/15/2009	Hail	1.75 in.	0	0	0	0
Athens	5/15/2009	Hail	1.00 in.	0	0	0	0

* NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

The NCDC database reported one significant lightning strike in Menard County since 1966. The event occurred on April 25, 2009, when lightning struck the water treatment plant in Petersburg and caused $50,000 in property damage.

The NCDC database identified 93 wind storms reported since 1966, the most recent of which was reported in July 2009 when storms produced wind gusts between 60 and 70 miles per hour.

As shown in Table 4-29, wind storms have historically occurred year-round with the greatest frequency and damage between May and July. The following table includes available top wind speeds for Menard County.

Table 4-29: Menard County Wind Storms*

Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Menard County	3/21/1966	Tstm Wind	Not Recorded	0	0	0	0
Menard County	3/21/1966	Tstm Wind	Not Recorded	0	0	0	0
Menard County	7/6/1969	Tstm Wind	Not Recorded	0	0	0	0
Menard County	6/19/1974	Tstm Wind	Not Recorded	0	0	0	0
Menard County	7/28/1974	Tstm Wind	Not Recorded	0	0	0	0
Menard County	4/13/1981	Tstm Wind	56 kts.	0	0	0	0
Menard County	10/5/1981	Tstm Wind	70 kts.	0	0	0	0
Menard County	11/1/1982	Tstm Wind	Not Recorded	0	0	0	0
Menard County	6/23/1984	Tstm Wind	52 kts.	0	0	0	0
Menard County	6/14/1986	Tstm Wind	70 kts.	0	0	0	0
Menard County	8/16/1987	Tstm Wind	65 kts.	0	0	0	0
Menard County	5/8/1988	Tstm Wind	Not Recorded	0	0	0	0
Menard County	11/15/1988	Tstm Wind	Not Recorded	0	0	0	0
Menard County	4/27/1990	Tstm Wind	Not Recorded	0	0	0	0
Menard County	6/20/1990	Tstm Wind	65 kts.	0	0	0	0
Menard County	5/17/1991	Tstm Wind	Not Recorded	0	0	0	0
Menard County	7/1/1991	Tstm Wind	Not Recorded	0	0	0	0
Menard County	10/4/1991	Tstm Wind	Not Recorded	0	0	0	0
Menard County	6/13/1992	Tstm Wind	Not Recorded	0	0	0	0
Menard County	7/2/1992	Tstm Wind	Not Recorded	0	0	0	0
Menard County	7/2/1992	Tstm Wind	Not Recorded	0	0	0	0
Menard County	7/2/1992	Tstm Wind	52 kts.	0	0	0	0
Menard County	7/29/1992	Tstm Wind	Not Recorded	0	0	0	0

Menard County	9/9/1992	Tstm Wind	Not Recorded	0	0	0	0
Atterberry	4/15/1994	Tstm Wind	Not Recorded	0	0	0	0
Oakford	7/2/1994	Tstm Wind	Not Recorded	0	0	0	0
Petersburg	7/2/1994	Tstm Wind	Not Recorded	0	0	0	0
Sweet Water	6/21/1995	Tstm Wind	Not Recorded	0	0	0	0
Central Illinois	3/25/1996	High Wind	Not Recorded	1	0	0	0
Athens	7/24/1996	Tstm Wind	Not Recorded	0	0	0	0
Central Illinois	10/30/1996	High Wind	56 kts.	0	0	0	0
Tallula	4/5/1997	Tstm Wind	Not Recorded	0	0	0	0
Central Illinois	4/6/1997	High Wind	56 kts.	0	0	0	0
Central Illinois	4/30/1997	High Wind	61 kts.	0	1	38K	0
Greenview	7/19/1997	Tstm Wind	Not Recorded	0	0	0	0
Athens	7/19/1997	Tstm Wind	Not Recorded	0	1	0	0
Countywide	8/15/1997	Tstm Wind	Not Recorded	0	0	0	0
Central Illinois	9/29/1997	High Wind	55 kts.	0	0	0	0
Petersburg	3/27/1998	Tstm Wind	Not Recorded	0	0	0	0
Oakford	5/24/1998	Tstm Wind	Not Recorded	0	0	0	0
Athens	6/11/1998	Tstm Wind	Not Recorded	0	0	0	0
Petersburg	6/28/1998	Tstm Wind	Not Recorded	0	3	0	0
Countywide	6/29/1998	Tstm Wind	Not Recorded	0	0	0	0
Petersburg	7/22/1998	Tstm Wind	Not Recorded	0	0	0	0
Petersburg	10/29/1998	Tstm Wind	52 kts.	0	0	0	0
Central Illinois	11/10/1998	High Wind	57 kts.	0	1	60K	0
Tallula	11/10/1998	Tstm Wind	Not Recorded	0	0	0	0
Petersburg	8/12/1999	Tstm Wind	59 kts.	0	0	75K	6.0M
Petersburg	8/23/1999	Tstm Wind	Not Recorded	0	0	0	0
Countywide	4/20/2000	Tstm Wind	70 kts.	0	0	0	0
Petersburg	6/20/2000	Tstm Wind	61 kts.	0	0	0	0
Petersburg	4/11/2001	Tstm Wind	53 kts.	0	0	0	0
Athens	5/22/2001	Tstm Wind	50 kts.	0	0	0	0
Petersburg	5/22/2001	Tstm Wind	51 kts.	0	0	0	0
Petersburg	7/4/2001	Tstm Wind	50 kts.	0	0	0	0
Petersburg	7/17/2001	Tstm Wind	50 kts.	0	0	0	0
Petersburg	8/22/2001	Tstm Wind	50 kts.	0	0	0	0
Countywide	4/19/2002	Tstm Wind	55 kts.	0	0	0	0
Tallula	4/24/2002	Tstm Wind	50 kts.	0	0	0	0
Countywide	7/22/2002	Tstm Wind	50 kts.	0	0	0	0
Greenview	12/18/2002	Tstm Wind	55 kts.	0	0	0	0
Oakford	4/4/2003	Tstm Wind	55 kts.	0	0	0	0
Petersburg	5/24/2004	Tstm Wind	50 kts.	0	0	0	0
Greenview	5/30/2004	Tstm Wind	55 kts.	0	0	0	0
Petersburg	6/10/2004	Tstm Wind	51 kts.	0	0	0	0
Oakford	8/9/2004	Tstm Wind	52 kts.	0	0	0	0
Greenview	10/29/2004	Tstm Wind	55 kts.	0	0	0	0
Petersburg	6/8/2005	Tstm Wind	50 kts.	0	0	0	0
Athens	6/13/2005	Tstm Wind	50 kts.	0	0	0	0
Greenview	8/19/2005	Tstm Wind	50 kts.	0	0	0	0
Petersburg	8/19/2005	Tstm Wind	50 kts.	0	0	0	0

Oakford	11/5/2005	Tstm Wind	50 kts.	0	0	0	0
Greenview	11/5/2005	Tstm Wind	50 kts.	0	0	0	0
Greenview	3/11/2006	Tstm Wind	50 kts.	0	0	0	0
Petersburg	3/13/2006	Tstm Wind	52 kts.	0	0	0	0
Tallula	4/2/2006	Tstm Wind	52 kts.	0	0	0	0
Petersburg	4/2/2006	Tstm Wind	60 kts.	0	0	0	0
Oakford	4/2/2006	Tstm Wind	52 kts.	0	0	0	0
Greenview	4/18/2006	Tstm Wind	60 kts.	0	0	0	0
Athens	5/24/2006	Tstm Wind	50 kts.	0	0	0	0
Greenview	7/19/2006	Tstm Wind	52 kts.	0	0	0	0
Greenview	9/22/2006	Tstm Wind	50 kts.	0	0	0	0
Sweet Water	5/15/2007	Tstm Wind	55 kts.	0	0	0	0
Menard County	12/23/2007	High Wind	60 kts.	0	0	18K	0
Menard County	5/11/2008	Strong Wind	45 kts.	0	0	4K	0
Culver	5/13/2008	Tstm Wind	55 kts.	0	0	7K	0
Oakford	6/3/2008	Tstm Wind	61 kts.	0	0	40K	0
Menard County	3/8/2009	High Wind	52 kts.	0	0	15K	0
Greenview	5/7/2009	Tstm Wind	52 kts.	0	0	4K	0
Greenview	5/7/2009	Tstm Wind	52 kts.	0	0	6K	0
Athens	5/15/2009	Tstm Wind	55 kts.	0	0	15K	0
Greenview	7/24/2009	Tstm Wind	52 kts.	0	0	2K	0

* NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Geographic Location for Thunderstorm Hazard

The entire county has the same risk for occurrence of thunderstorms. They can occur at any location within the county.

Hazard Extent for Thunderstorm Hazard

The extent of the historical thunderstorms varies in terms of the extent of the storm, the wind speed, and the size of hail stones. Thunderstorms can occur at any location within the county.

Risk Identification for Thunderstorm Hazard

Based on historical information, the occurrence of future high winds, hail, and lightning is highly likely. High winds with widely varying magnitudes are expected to happen. According to the RPI, thunderstorms and high wind damage ranked as the number six hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
4	x	**1**	=	**4**

Vulnerability Analysis for Thunderstorm Hazard

Severe thunderstorms are an equally distributed threat across the entire jurisdiction; therefore, the entire county's population and all buildings are vulnerable to a severe thunderstorm and can expect the same impacts within the affected area. This plan will therefore consider all buildings located within the county as vulnerable. The existing buildings and infrastructure in Menard County are discussed in Table 4-9.

Critical Facilities

All critical facilities are vulnerable to severe thunderstorms. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g. a damaged police station will no longer be able to serve the community). Table 4-8 lists the types and numbers of all of the essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

Building Inventory

A table of the building exposure in terms of types and numbers of buildings for the entire county is provided in Table 4-9. The buildings within the county can all expect the same impacts, similar to those discussed for critical facilities. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g. a damaged home will no longer be habitable causing residents to seek shelter).

Infrastructure

During a severe thunderstorm, the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is equally vulnerable it is important to emphasize that any number of these items could become damaged during a severe thunderstorm. The impacts to these items include broken, failed, or impassable roadways; broken or failed utility lines (e.g. loss of power or gas to community); or railway failure from broken or impassable railways. Bridges could fail or become impassable causing risk to traffic.

Potential Dollar Losses for Thunderstorm Hazard

To determine dollar losses for a thunderstorm hazard, the available NCDC hazard information was condensed to include only thunderstorm hazards that occurred within the past ten years. Menard County's MHMP team then reviewed the property damages reported to NCDC and made any applicable updates.

It was determined that since 1999, Menard County has incurred $236,000 in damages relating to thunderstorms, including hail, lightning, and high winds. The resulting information is listed in Table 4-30.

Table 4-30: Menard County Property Damage (1999–Present)

Location or County	Date	Type	Property Damage
Petersburg	08/12/99	Tstm Wind	$ 75,000
		1999 Subtotal	$ 75,000
		2000-2006 Subtotal	$ -
Menard County	12/23/07	High Wind	$ 18,000
		2007 Subtotal	$ 18,000
Menard County	05/11/08	High Wind	$ 4,000
Culver	05/13/08	Tstm Wind	$ 7,000
Oakford	06/03/08	Tstm Wind	$ 40,000
		2008 Subtotal	$ 51,000
Menard County	03/08/09	High Wind	$ 15,000
Petersburg	04/25/09	Lightning	$ 50,000
Greenview	05/07/09	Tstm Wind	$ 4,000
Greenview	05/07/09	Tstm Wind	$ 6,000
Athens	05/15/09	Tstm Wind	$ 15,000
Greenview	07/24/09	Tstm Wind	$ 2,000
		2009 Subtotal	$ 92,000
		Total Property Damage	**$ 236,000**

*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Vulnerability to Future Assets/Infrastructure for Thunderstorm Hazard

All future development within the county and all communities will remain vulnerable to these events.

Analysis of Community Development Trends

Preparing for severe storms will be enhanced if officials sponsor a wide range of programs and initiatives to address the overall safety of county residents. New structures need to be built with more sturdy construction, and those structures already in place need to be hardened to lessen the potential impacts of severe weather. Community warning sirens to provide warning of approaching storms are also vital to preventing the loss of property and ensuring the safety of Menard County residents.

4.4.5 Drought and Extreme Heat Hazard

Hazard Definition for Drought Hazard

Drought is a climatic phenomenon that occurs in Menard County. The meteorological condition that creates a drought is below normal rainfall. However, excessive heat can lead to increased evaporation, which will enhance drought conditions. Droughts can occur in any month. Drought differs from normal arid conditions found in low rainfall areas. Drought is the consequence of a reduction in the amount of precipitation over an undetermined length of time (usually a growing season or more).

The severity of a drought depends on location, duration, and geographical extent. Additionally, drought severity depends on the water supply, usage demands made by human activities, vegetation, and agricultural operations. Drought brings several different problems that must be addressed. The quality and quantity of crops, livestock, and other agricultural assets will be affected during a drought. Drought can adversely impact forested areas leading to an increased potential for extremely destructive forest and woodland fires that could threaten residential, commercial, and recreational structures.

Hazard Definition for Extreme Heat Hazard

Drought conditions are often accompanied by extreme heat, which is defined as temperatures that hover 10°F or more above the average high for the area and last for several weeks. Extreme heat can occur in humid conditions when high atmospheric pressure traps the damp air near the ground or in dry conditions, which often provoke dust storms.

Common Terms Associated with Extreme Heat

Heat Wave: Prolonged period of excessive heat, often combined with excessive humidity

Heat Index: A number in degrees Fahrenheit that tells how hot it feels when relative humidity is added to air temperature. Exposure to full sunshine can increase the heat index by 15°F.

Heat Cramps: Muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with heat.

Heat Exhaustion: Typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs, resulting in a form of mild shock. If left untreated, the victim's condition will worsen. Body temperature will continue to rise and the victim may suffer heat stroke.

Heat and Sun Stroke: A life-threatening condition. The victim's temperature control system, which produces sweat to cool the body, stops working. The body's temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Source: FEMA

Previous Occurrences for Drought and Extreme Heat Hazard

The NCDC database reported seven drought/heat wave events in Menard County since 1997. The most recent reported event occurred in July 2006 across central and southeast Illinois. Afternoon high temperatures ranged from 94°F to 100°F most afternoons, with afternoon heat indices ranging from 105°F to 110°F. Overnight lows only fell into the mid-70s.

NCDC records of droughts/heat waves are identified in Table 4-31. Additional details for NCDC events are included in Appendix D.

Table 4-31: Menard County Drought/Heat Wave Events*

Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Statewide	07/26/97	Excessive Heat	N/A	2	0	0	0
Statewide	06/26/98	Excessive Heat	N/A	1	0	0	0
Statewide	07/20/99	Excessive Heat	N/A	4	0	0	0
Statewide	07/28/99	Excessive Heat	N/A	1	0	0	0
Statewide	07/22/05	Excessive Heat	N/A	1	0	0	0
Statewide	07/30/06	Heat	N/A	1	0	0	0
Statewide	08/01/06	Heat	N/A	0	0	0	0

* NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Geographic Location for Drought and Extreme Heat Hazard

Droughts are regional in nature. All areas of the United States are vulnerable to the risk of drought and extreme heat.

Hazard Extent for Drought and Extreme Heat Hazard

Droughts and extreme heat can be widespread or localized events. The extent of the droughts varies both in terms of the extent of the heat and the range of precipitation.

Risk Identification for Drought/Extreme Heat Hazard

Based historical data and input from the planning team, the occurrence of future drought and extreme heat is likely. Drought and extreme heat was ranked as the number eight hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
3	x	1	=	3

Vulnerability Analysis for Drought and Extreme Heat Hazard

Drought and extreme heat impacts are an equally distributed threat across the entire jurisdiction; therefore, the county is vulnerable to this hazard and can expect the same impacts within the affected area. According to FEMA, approximately 175 Americans die each year from extreme heat. Young children, elderly, and infirmed populations have the greatest risk.

The entire population and all buildings have been identified as at risk. The building exposure for Menard County, as determined from the building inventory is included in Table 4-9.

Critical Facilities

All critical facilities are vulnerable to drought. A critical facility will encounter many of the same impacts as any other building within the jurisdiction, which should involve only minor damage. These impacts include water shortages, fires as a result of drought conditions, and residents in need of medical care from the heat and dry weather. Table 4-8 lists the types and numbers of all of the essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

Building Inventory

A table of the building exposure in terms of types and numbers of buildings for the entire county is listed in Table 4-9. The buildings within the county can all expect the same impacts similar to those discussed for critical facilities. These impacts include water shortages, fires as a result of drought conditions, and residents in need of medical care from the heat and dry weather.

Infrastructure

During a drought the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. The risk to these structures is primarily associated with a fire that could result from the hot, dry conditions. Since the county's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these items could become damaged during a heat wave. The impacts to these items include broken, failed, or impassable roadways; broken or failed utility lines (e.g. loss of power or gas to community); or railway failure from broken or impassable railways. Bridges could fail or become impassable causing risk to traffic.

Vulnerability to Future Assets/Infrastructure for Drought/Extreme Heat Hazard

Future development will remain vulnerable to these events. Typically, some urban and rural areas are more susceptible than others. For example, urban areas are subject to water shortages during periods of drought. Excessive demands of the populated area place a limit on water resources. In rural areas, crops and livestock may suffer from extended periods of heat and drought. Dry conditions can lead to the ignition of wildfires that could threaten residential, commercial, and recreational areas.

Analysis of Community Development Trends

Because droughts and extreme heat are regional in nature, future development will be impacted across the county. Although urban and rural areas are equally vulnerable to this hazard, those living in urban areas may have a greater risk from the effects of a prolonged heat wave. The atmospheric conditions that create extreme heat tend to trap pollutants in urban areas, adding contaminated air to the excessively hot temperatures and creating increased health problems. Furthermore, asphalt and concrete store heat longer, gradually releasing it at night and producing high nighttime temperatures. This phenomenon is known as the "urban heat island effect."

Source: FEMA

Local officials should address drought and extreme heat hazards by educating the public on steps to take before and during the event—for example, temporary window reflectors to direct heat back outside, staying indoors as much as possible, and avoiding strenuous work during the warmest part of the day.

4.4.6 Winter Storm Hazard

Hazard Definition for Winter Storm Hazard

Severe winter weather consists of various forms of precipitation and strong weather conditions. This may include one or more of the following: freezing rain, sleet, heavy snow, blizzards, icy roadways, extreme low temperatures, and strong winds. These conditions can cause human health risks such as frostbite, hypothermia, and death.

Ice (glazing) and Sleet Storms

Ice or sleet, even in small quantities, can result in hazardous driving conditions and can cause property damage. Sleet involves frozen raindrops that bounce when they hit the ground or other objects. Sleet does not stick to trees and wires. Ice storms, on the other hand, involve liquid rain that falls through subfreezing air and/or onto sub-freezing surfaces, freezing on contact with those surfaces. The ice coats trees, buildings, overhead wires, and roadways, sometimes causing extensive damage.

The most damaging winter storms in Central Illinois have been ice storms. Ice storms occur when moisture-laden gulf air converges with the northern jet stream causing strong winds and heavy precipitation. This precipitation takes the form of freezing rain coating power and communication lines and trees with heavy ice. The winds will then cause the overburdened limbs and cables to snap; leaving large sectors of the population without power, heat, or communication.

Snowstorms

Significant snowstorms are characterized by the rapid accumulation of snow, often accompanied by high winds, cold temperatures, and low visibility. A blizzard is categorized as a snowstorm with winds of 35 miles per hour or greater and/or visibility of less than one-quarter mile for three or more hours. The strong winds during a blizzard blow about falling and already existing snow, creating poor visibility and impassable roadways. Blizzards have the potential to result in property damage.

Illinois has repeatedly been struck by blizzards. Blizzard conditions cannot only cause power outages and loss of communication, but also make transportation difficult. The blowing of snow can reduce visibility to less than one-quarter mile, and the resulting disorientation makes even travel by foot dangerous if not deadly.

Severe Cold

Severe cold is characterized by the ambient air temperature dropping to around 0°F or below. These extreme temperatures can increase the likelihood of frostbite and hypothermia. High winds during severe cold events can enhance the air temperature's effects. Fast winds during cold weather events can lower the wind chill factor (how cold the air feels on your skin). As a result, the time it takes for frostbite and hypothermia to affect a person's body will decrease.

Previous Occurrences for Winter Storm Hazard

The NCDC database identified 29 winter storm and extreme cold events for Menard County since 1995. The most recent reported event occurred in January 2009. A powerful winter storm swept through central and southeast Illinois, bringing heavy snow accumulation of 8-12 inches.

The NCDC winter storms are listed in Table 4-32. Additional details for NCDC events are included in Appendix D.

Table 4-32: Winter Storm Events*

Location or County	Date	Type	Magnitude	Deahts	Injuries	Property Damage	Crop Damage
Central Illinois	12/8/1995	Winter Storm	N/A	1	0	0	0
Central Illinois	12/18/1995	Winter Storm	N/A	1	0	0	0
Central Illinois	1/4/1996	Winter Storm	N/A	0	0	0	0
Central Illinois	1/18/1996	Winter Storm	N/A	0	2	0	0
Central Illinois	2/2/1996	Extreme Cold	N/A	2	0	0	0
Central Illinois	1/8/1997	Heavy Snow	N/A	0	6	0	0
Central Illinois	1/15/1997	Winter Storm	N/A	1	7	0	0
Central Illinois	1/24/1997	Winter Storm	N/A	0	0	0	0
Central Illinois	1/26/1997	Winter Storm	N/A	0	9	0	0
Central Illinois	12/9/1997	Heavy Snow	N/A	1	0	0	0
Central Illinois	12/30/1997	Heavy Snow	N/A	3	0	0	0
Central Illinois	1/8/1998	Heavy Snow	N/A	0	0	0	0
Central Illinois	1/14/1998	Winter Storm	N/A	0	0	0	0
Central Illinois	3/8/1998	Winter Storm	N/A	2	0	0	0
Central Illinois	1/1/1999	Heavy Snow	N/A	1	1	0	0
Central Illinois	1/5/1999	Extreme Cold	N/A	0	0	0	0
Central Illinois	3/8/1999	Heavy Snow	N/A	0	5	0	0
Menard County	2/14/2003	Winter Storm	N/A	0	0	0	0
Menard County	11/30/2006	Winter Storm	N/A	0	0	0	0
Central Illinois	12/1/2006	Winter Storm	N/A	0	0	0	0
Menard County	1/12/2007	Ice Storm	N/A	0	0	0	0
Central Illinois	2/12/2007	Blizzard	N/A	0	0	0	0
Central Illinois	2/12/2007	Winter Storm	N/A	0	0	0	0
Central Illinois	4/5/2007	Frost/freeze	N/A	0	0	0	0
Menard County	12/8/2007	Ice Storm	N/A	0	0	50K	0
Central Illinois	1/31/2008	Heavy Snow	N/A	0	0	0	0
Central Illinois	2/1/2008	Heavy Snow	N/A	0	0	0	0
Menard County	12/18/2008	Ice Storm	N/A	0	0	100K	0
Central Illinois	1/15/2009	Extreme Cold/wind Chill	N/A	1	0	0	0

* NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Geographic Location for Winter Storm Hazard

Severe winter storms are regional in nature. Most of the NCDC data is calculated regionally or in some cases statewide.

Hazard Extent for Winter Storm Hazard

The extent of the historical winter storms varies in terms of storm location, temperature, and ice or snowfall. A severe winter storm can occur anywhere in the jurisdiction.

Risk Identification for Winter Storm Hazard

Based on historical information and input from the planning team, the occurrence of future winter storms is likely. Winter storms of varying magnitudes are expected to happen. According to the RPI, winter storms were ranked as the number five hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
3	x	2	=	6

Vulnerability Analysis for Winter Storm Hazard

Winter storm impacts are equally distributed across the entire jurisdiction; therefore, the entire county is vulnerable to a winter storm and can expect the same impacts within the affected area. The building exposure for Menard County, as determined from the building inventory, is included in Table 4-9.

Critical Facilities

All critical facilities are vulnerable to a winter storm. A critical facility will encounter many of the same impacts as other buildings within the jurisdiction. These impacts include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow. Table 4-8 lists the types and numbers of the essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

Building Inventory

A table of the building exposure in terms of types and numbers of buildings for the entire county is listed in Table 4-9. The impacts to the general buildings within the county are similar to the damages expected to the critical facilities. These include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow.

Infrastructure

During a winter storm, the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is equally vulnerable it is important to emphasize that any number of these items could become damaged during a winter storm. Potential impacts include broken gas and/or electricity lines or damaged utility lines, damaged or impassable roads and railways, and broken water pipes.

Potential Dollar Losses for Winter Storm Hazard

A HAZUS-MH analysis was not completed for winter storms because the widespread extent of such a hazard makes it difficult to accurately model outcomes.

To determine dollar losses for a winter storm hazard, the available NCDC hazard information was condensed to include only winter storm hazards that occurred within the past ten years. Menard County's MHMP team then reviewed the property damages reported to NCDC and made any applicable updates.

It was determined that since 1999, Menard County has incurred $150,000 in property damages relating to winter storms, including sleet/ice and heavy snow. It is noted that the NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. These estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event. Based on averages in the last decade, it can be inferred that Menard County incurs an annual damage of approximately $15,000 per year.

Vulnerability to Future Assets/Infrastructure for Winter Storm Hazard

Any new development within the county will remain vulnerable to these events.

Analysis of Community Development Trends

Because the winter storm events are regional in nature future development will be equally impacted across the county.

4.4.7 Hazardous Materials Storage and Transport Hazard

Hazard Definition for Hazardous Materials Storage and Transport Hazard

Illinois has numerous active transportation lines that run through many of its counties. Active railways transport harmful and volatile substances between our borders every day. The transportation of chemicals and substances along interstate routes is commonplace in Illinois. The rural areas of Illinois have considerable agricultural commerce creating a demand for fertilizers, herbicides, and pesticides to be transported along rural roads. These factors increase the chance of hazardous material releases and spills throughout the state of Illinois.

The release or spill of certain substances can cause an explosion. Explosions result from the ignition of volatile products such as petroleum products, natural and other flammable gases, hazardous materials/chemicals, dust, and bombs. An explosion can potentially cause death, injury, and property damage. In addition, a fire routinely follows an explosion which may cause further damage and inhibit emergency response. Emergency response may require fire, safety/law enforcement, search and rescue, and hazardous materials units.

Previous Occurrences for Hazardous Materials Storage and Transport Hazard

Menard County has not experienced a large-scale hazardous material incident at a fixed site or during transport resulting in multiple deaths or serious injuries, although there have been many minor releases that have put local firefighters, hazardous materials teams, emergency management, and local law enforcement into action to try to stabilize these incidents and prevent or lessen harm to Menard County residents.

Geographic Location for Hazardous Materials Storage and Transport Hazard

The hazardous material hazards are countywide and are primarily associated with the transport of materials via highway, railroad, and/or river barge.

Hazard Extent for Hazardous Materials Storage and Transport Hazard

The extent of the hazardous material hazard varies both in terms of the quantity of material being transported as well as the specific content of the container.

Risk Identification for Hazardous Materials Release

Based on input from the planning team, the occurrence of a hazardous materials accident is possible. According to the RPI, Hazardous Materials Storage and Transport ranked as the number three hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
2	x	4	=	8

Vulnerability Analysis for Hazardous Materials Storage and Transport Hazard

Hazardous material impacts are an equally distributed threat across the entire jurisdiction; therefore, the entire county is vulnerable to a hazardous material release and can expect the same impacts within the affected area. The main concern during a release or spill is the population affected. The building exposure for Menard County, as determined from building inventory, is included in Table 4-9. This plan will therefore consider all buildings located within the county as vulnerable.

Critical Facilities

All critical facilities and communities within the county are at risk. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure due to fire or explosion and loss of function of the facility (e.g. a damaged police station will no longer be able to serve the community). Table 4-8 lists the types and numbers of all essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

Building Inventory

A table of the building exposure in terms of types and numbers of buildings for the entire county is listed in Table 4-9. The buildings within the county can all expect the same impacts, similar to those discussed for critical facilities. These impacts include structural failure due to fire or explosion or debris and loss of function of the building (e.g. a damaged home will no longer be habitable causing residents to seek shelter).

Infrastructure

During a hazardous material release the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available to this plan it is important to emphasize that any number of these items could become damaged in the event of a hazardous material release. The impacts to these items include broken, failed, or impassable roadways; broken or failed utility lines (e.g. loss of power or gas to community); and railway failure from broken or impassable railways. Bridges could fail or become impassable causing risk to traffic.

In terms of numbers and types of buildings and infrastructure, typical scenarios are described to gauge the anticipated impacts of hazardous material release events in the county.

The U.S. EPA's ALOHA (Areal Locations of Hazardous Atmospheres) model was utilized to assess the area of impact for an anhydrous ammonia release at the intersection of Illinois and Midland Railroad and State Route 123 on the east side of Petersburg, IL.

Anhydrous ammonia is a clear colorless gas with a strong odor. Contact with the unconfined liquid can cause frostbite. Though the gas is generally regarded as nonflammable, it can burn within certain vapor concentration limits with strong ignition. The fire hazard increases in the presence of oil or other combustible materials. Vapors from an anhydrous ammonia leak initially

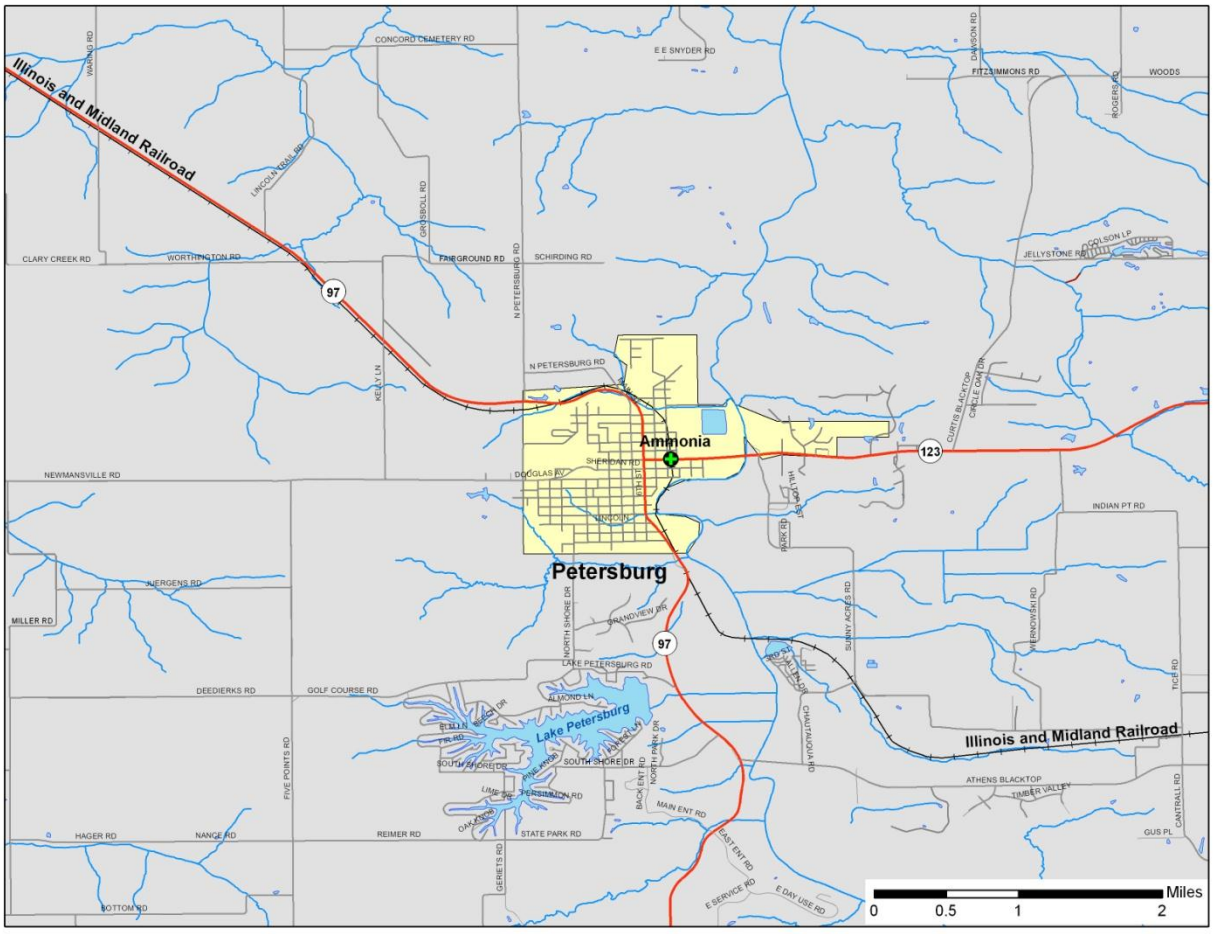
hug the ground, and prolonged exposure of containers to fire or heat may cause violent rupturing and rocketing. Long-term inhalation of low concentrations of the vapors or short-term inhalation of high concentrations has adverse health effects. Anhydrous ammonia is generally used as a fertilizer, a refrigerant, and in the manufacture of other chemicals.

Source: CAMEO

ALOHA is a computer program designed especially for use by people responding to chemical accidents, as well as for emergency planning and training. Anhydrous ammonia is a common chemical used in industrial operations and can be found in either liquid or gas form. Rail and truck tankers commonly haul anhydrous ammonia to and from facilities. The target area was selected for three primary reasons: 1) the high volume traffic, 2) the area is highly populated and 3) proximity to several critical facilities.

For this scenario, moderate atmospheric and climatic conditions with a slight breeze from the west were assumed. The geographic area covered in this analysis is depicted in Figure 4-13.

Figure 4-13: Location of Chemical Release



Analysis

The ALOHA atmospheric modeling parameters, depicted in Figure 4-14, were based upon a westerly wind speed of five miles per hour. The temperature was 70°F with 50% humidity and a cloud cover of five-tenths skies.

The source of the chemical spill is a horizontal, cylindrical-shaped tank. The diameter of the tank was set to 10.4 feet and the length set to 53 feet (33,700 gallons). At the time of its release, it was estimated that the tank was 85% full. The anhydrous ammonia in this tank is in its liquid state.

This release was based on a leak from a 2.5-inch-diameter hole, 12 inches above the bottom of the tank. According to the ALOHA parameters, approximately 7,890 pounds of material would be released per minute. The image in Figure 4-15 depicts the plume footprint generated by ALOHA.

Figure 4-14: ALOHA Plume Modeling Parameters

SITE DATA:
Location: PETERSBURG2, ILLINOIS
Building Air Exchanges Per Hour: 0.37 (sheltered single storied)
Time: May 13, 2010 0957 hours CDT (using computer's clock)

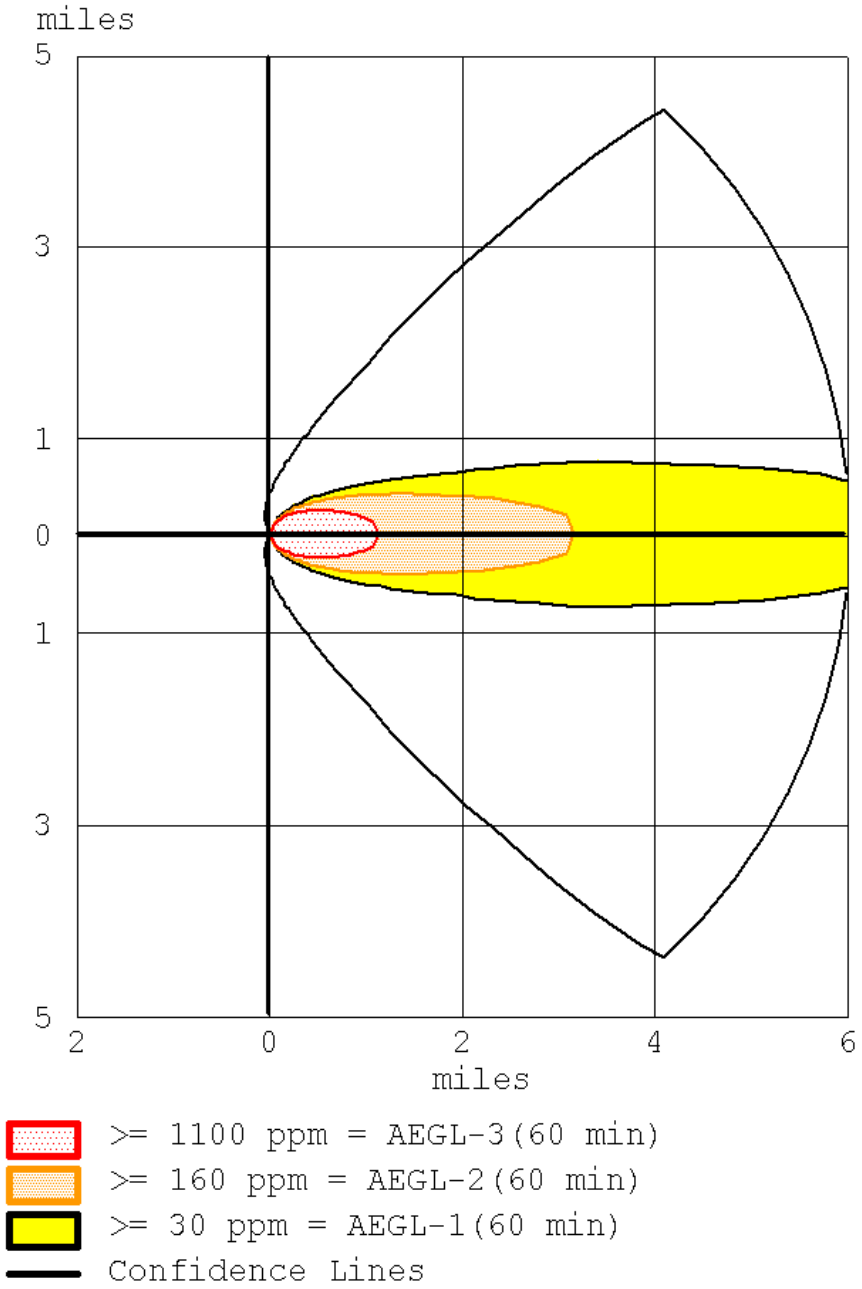
CHEMICAL DATA:
Chemical Name: AMMONIA Molecular Weight: 17.03 g/mol
AEGL-1(60 min): 30 ppm AEGL-2(60 min): 160 ppm AEGL-3(60 min): 1100 ppm
IDLH: 300 ppm LEL: 160000 ppm UEL: 250000 ppm
Ambient Boiling Point: -28.8° F
Vapor Pressure at Ambient Temperature: greater than 1 atm
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
Wind: 5 miles/hour from E at 3 meters
Ground Roughness: open country Cloud Cover: 5 tenths
Air Temperature: 70° F Stability Class: B
No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:
Leak from hole in horizontal cylindrical tank
Flammable chemical escaping from tank (not burning)
Tank Diameter: 10.4 feet Tank Length: 53 feet
Tank Volume: 33,679 gallons
Tank contains liquid Internal Temperature: 70° F
Chemical Mass in Tank: 72.7 tons Tank is 85% full
Circular Opening Diameter: 2.5 inches
Opening is 12 inches from tank bottom
Release Duration: 34 minutes
Max Average Sustained Release Rate: 7,890 pounds/min
(averaged over a minute or more)
Total Amount Released: 139,584 pounds
Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).

THREAT ZONE:
Model Run: Heavy Gas
Red : 1.1 miles --- (1100 ppm = AEGL-3(60 min))
Orange: 3.2 miles --- (160 ppm = AEGL-2(60 min))
Yellow: greater than 6 miles --- (30 ppm = AEGL-1(60 min))

Figure 4-15: Plume Footprint Generated by ALOHA



Acute Exposure Guideline Levels (AEGLs) are intended to describe the health effects on humans due to once-in-a-lifetime or rare exposure to airborne chemicals. The National Advisory Committee for AEGLs is developing these guidelines to help both national and local authorities, as well as private companies, deal with emergencies involving spills or other catastrophic exposures. As the substance moves away from the source, the level of substance concentration decreases. Each color-coded area depicts a level of concentration measured in parts per million (ppm). The image in Figure 4-16 depicts the plume footprint generated by ALOHA in ArcGIS.

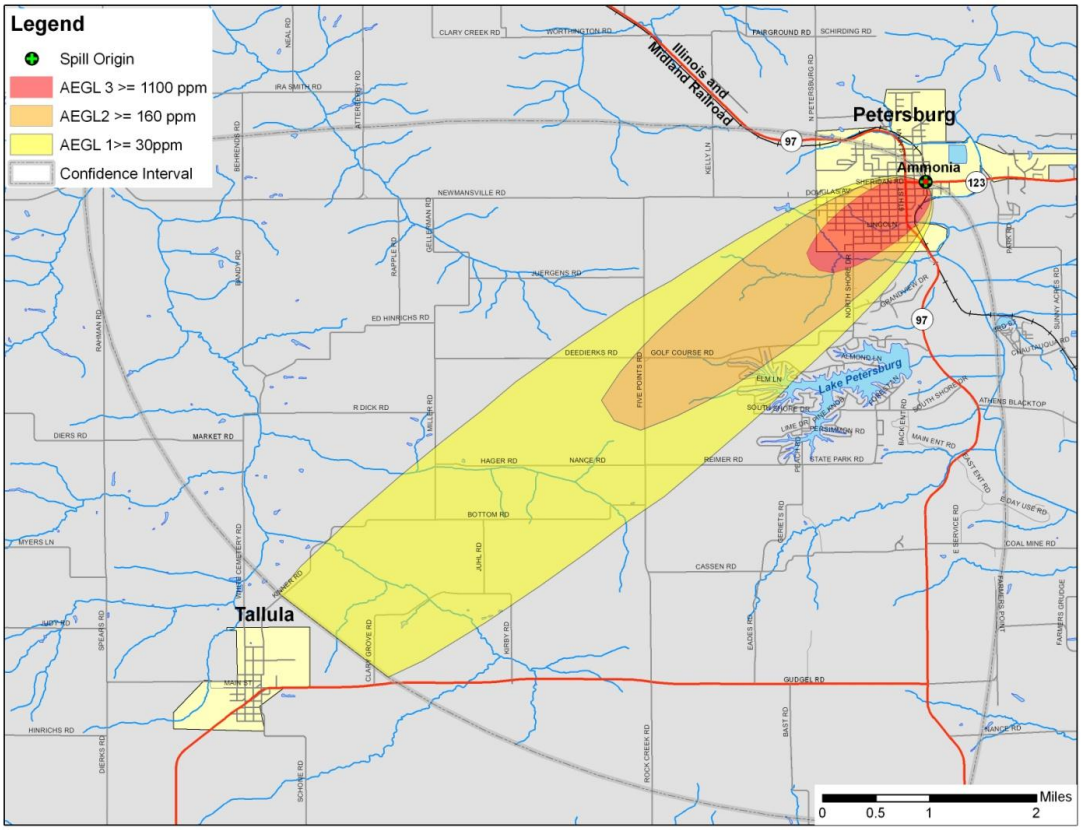
- **AEGL 3:** Above this airborne concentration of a substance, it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death. The red buffer (≥1100 ppm) extends no more than six miles from the point of release after one hour.

- **AEGL 2:** Above this airborne concentration of a substance, it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape. The orange buffer (≥160 ppm) extends no more than six miles from the point of release after one hour.

- **AEGL 1:** Above this airborne concentration of a substance, it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure. The yellow buffer (≥30 ppm) extends more than six miles from the point of release after one hour.

- **Confidence Lines**: The dashed lines depict the level of confidence in which the exposure level will be contained. The ALOHA model is 95% confident that the release will stay within this boundary.

Figure 4-16: ALOHA Plume Footprint Overlaid in ArcGIS

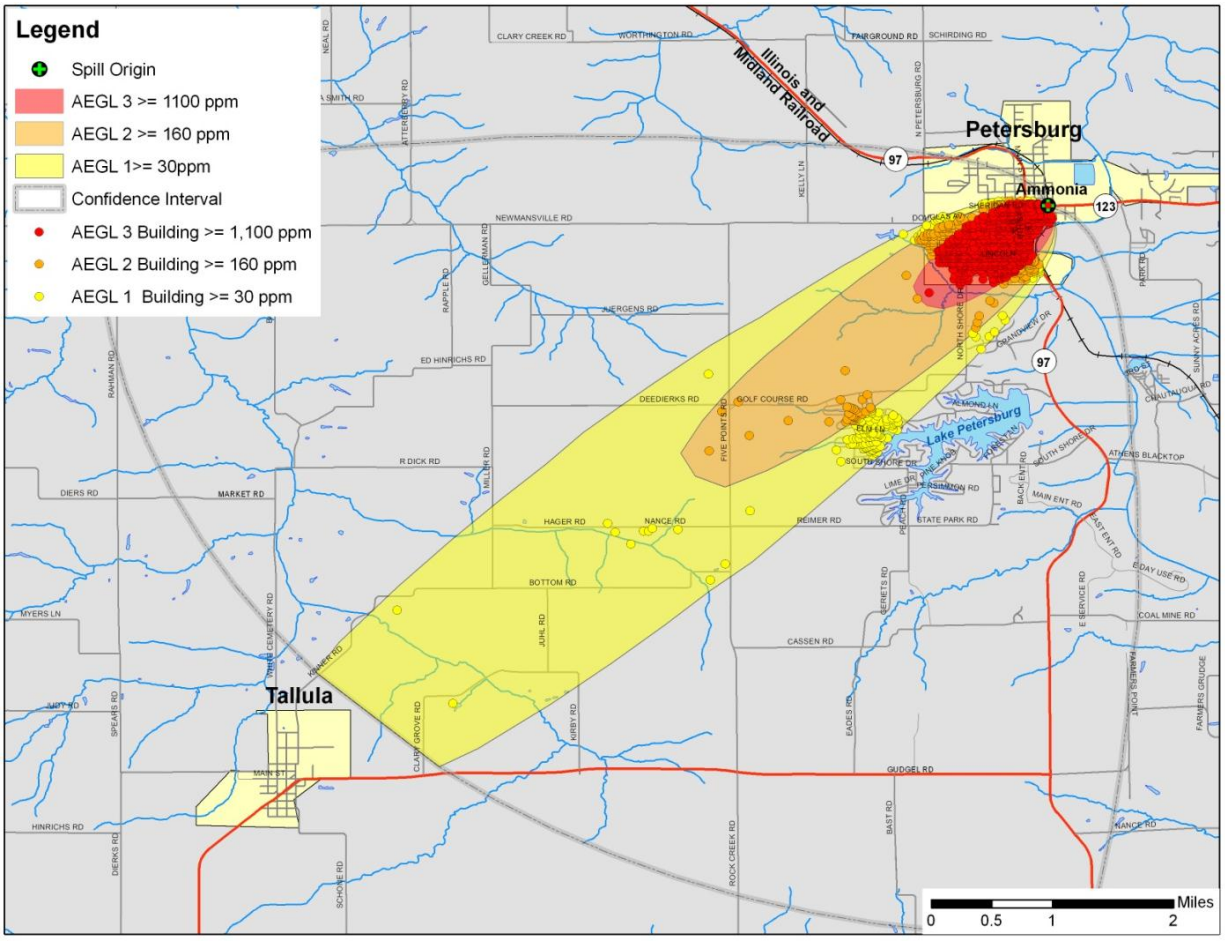


Results

By summing the building inventory within all AEGL levels (AEGL 3: ≥1,100 ppm, AEGL 2: ≥160 ppm and Level 1: ≥3 ppm.), the GIS overlay analysis predicts that as many as 749 buildings could be exposed at a replacement cost of $44 million. If this event were to occur, approximately 1,700 people would be affected. The results are depicted in Figure 4-17.

The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

Figure 4-17: Menard County Building Inventory Classified By Plume Footprint



Building Inventory Damage

The results of the analysis against the building inventory points are depicted in Tables 4-33 through 4-36. Table 4-33 summarizes the results of the chemical spill by combining all AEGL level. Tables 4-34 through 4-36 summarize the results of the chemical spill for each level separately.

Table 4-33: Estimated Exposure for all Level (all ppm)

Occupancy	Population	Building Counts	Building Exposure
Residential	1,490	596	$25,221,747
Commercial	0	111	$5,768,614
Industrial	0	0	$0
Agriculture	0	14	$495,696
Religious	0	19	$0
Government	0	8	$9,631,080
Education	237*	1	$2,912,613
Total	**1490**	**749**	**$44,029,750**

*Approximate number of students at impacted school. Not included in Final tally because scenario assumes a nighttime release.

Table 4-34: Estimated Exposure for Level 3 (≥1100 ppm)

Occupancy	Population	Building Counts	Building Exposure
Residential	863	345	$12,646,305
Commercial	0	99	$5,326,178
Industrial	0	0	$0
Agriculture	0	0	$0
Religious	0	16	$0
Government	0	4	$9631080
Education	237*	1	$2912612
Total	**863**	**465**	**$30,516,176**

*Approximate number of students at impacted school. Not included in Final tally because scenario assumes a nighttime release.

Table 4-35: Estimated Exposure for Level 2 (≥160 ppm)

Occupancy	Population	Building Counts	Building Exposure
Residential	298	119	$5,394,503
Commercial	0	8	$313,464
Industrial	0	0	$0
Agriculture	0	7	$327,560
Religious	0	3	$0
Government	0	2	$0
Education	0	0	$0
Total	**298**	**139**	**$6,035,527**

Table 4-36: Estimated Exposure for Level 1 (≥30 ppm)

Occupancy	Population	Building Counts	Building Exposure
Residential	330	132	$7,180,940
Commercial	0	4	$128,972
Industrial	0	0	$0
Agriculture	0	7	$168,136
Religious	0	0	$0
Government	0	4	$0
Education	0	0	$0
Total	**330**	**147**	**$7,478,048**

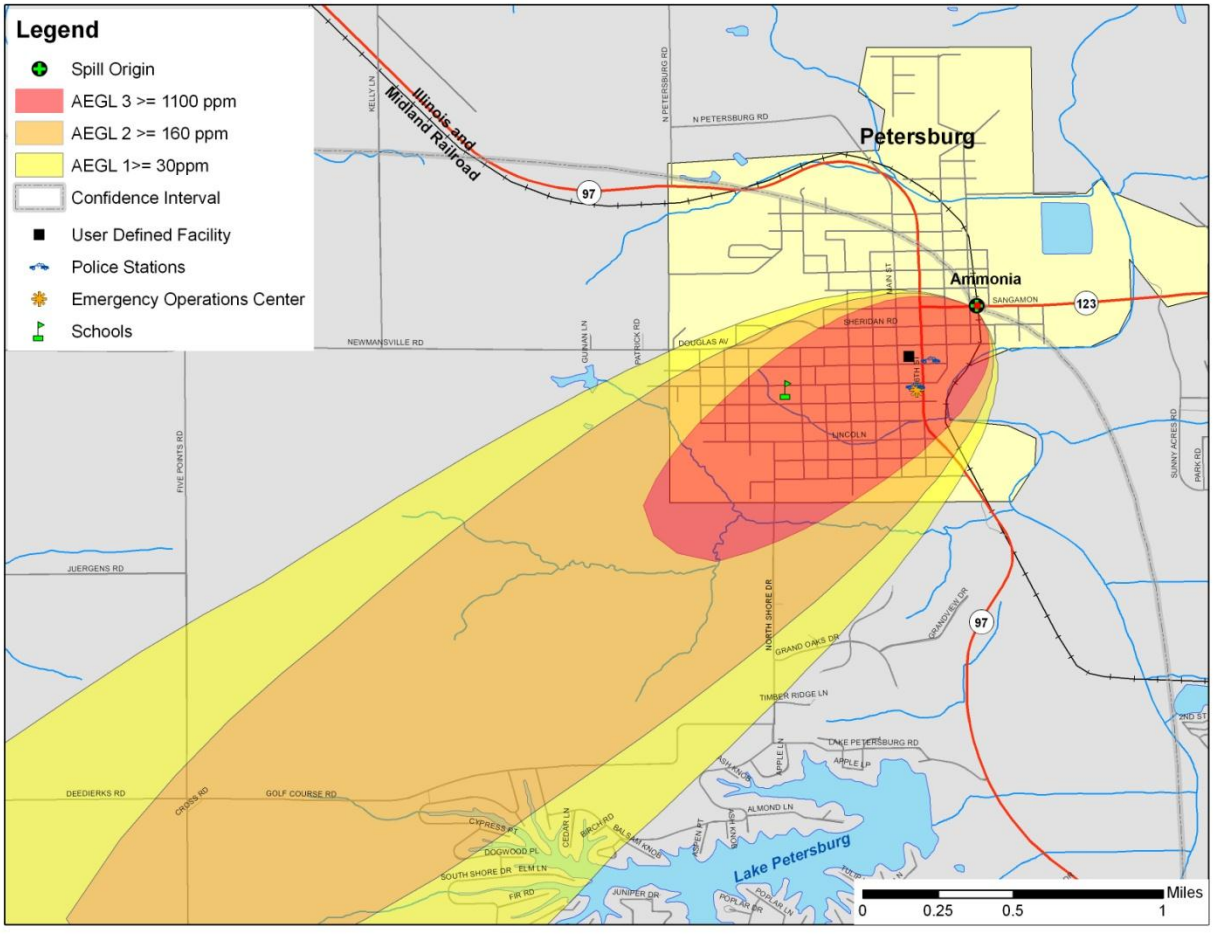
Critical Facilities Damage

There are five critical facilities within the limits of the chemical spill plume. The affected facilities are identified in Table 4-37. Their geographic locations are depicted in Figure 4-18.

Table 4-37: Essential Facilities within Plume Footprint

Name
Emergency Operations Centers
Menard County 911 Dispatch
Police Departments
Menard County Sheriff
Petersburg Police Department/City Hall
Schools
Petersburg Elementary School
User Defined Facility
Menard County Courthouse
Menard County Rescue Squad
Petersburg City Hall

Figure 4-18: Essential Facilities within Plume Footprint



Vulnerability to Future Assets/Infrastructure for Hazardous Materials Storage and Transport Hazard

Any new development within the county will be vulnerable to these events, especially development along major roadways.

Analysis of Community Development Trends

Because the hazardous material hazard events may occur anywhere within the county, future development will be impacted. The major transportation routes and the industries located in Menard County pose a threat of dangerous chemicals and hazardous materials release.

4.4.8 Fire Hazard

Hazard Definition for Fire Hazard

This plan will address three major categories of fires for Menard County: 1) tire/scrap fires; 2) structural fires; and 3) wildfires.

Tire Fires

The state of Illinois generates thousands of scrap tires annually. Many of those scrap tires end up in approved storage sites that are carefully regulated and controlled by federal and state officials. However, scrap tires are sometimes intentionally dumped in unapproved locations throughout the state. The number of unapproved locations cannot be readily determined. These illegal sites are owned by private residents who have been continually dumping waste and refuse, including scrap tires, at those locations for many years.

Tire disposal sites can be fire hazards, in large part, because of the enormous number of scrap tires typically present at one site. This large amount of fuel renders standard firefighting practices nearly useless. Flowing and burning oil released by the scrap tires can spread the fire to adjacent areas. Tire fires differ from conventional fires in the following ways:

- Relatively small tire fires can require significant fire resources to control and extinguish.
- Those resources often cost much more than Menard County government can absorb compared to standard fire responses.
- There may be significant environmental consequences of a major tire fire. Extreme heat can convert a standard vehicle tire into approximately two gallons of oily residue that may leak into the soil or migrate to streams and waterways.

Structural Fires

Lightning strikes, poor building construction, and building condition are the main causes for most structural fires in Illinois. Menard County has a few structural fires each year countywide.

Wildfires

When hot and dry conditions develop, forests may become vulnerable to devastating wildfires. In the past few decades an increased commercial and residential development near forested areas has dramatically changed the nature and scope of the wildfire hazard. In addition, the increase in structures resulting from new development strains the effectiveness of the fire service personnel in the county.

Previous Occurrences for Fire Hazard

Menard County has not experienced a significant or large-scale explosion at a fixed site or transportation route that has resulted in multiple deaths or serious injuries.

Geographic Location for Fire Hazard

Fire hazards occur countywide and therefore affect the entire county. The forested areas in the county have a higher chance of widespread fire hazard.

Hazard Extent for Fire Hazard

The extent of the fire hazard varies both in terms of the severity of the fire and the type of material being ignited. All communities in Menard County are affected by fire equally.

Risk Identification for Fire Hazard

Based on input from the planning team, the future occurrence of a fire or explosion is possible. According to the RPI, fire/explosion is ranked as the number four hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude /Severity	=	RPI
2	x	4	=	8

Vulnerability Analysis for Fire Hazard

This hazard impacts the entire jurisdiction equally; therefore, the entire population and all buildings within the county are vulnerable to fires and can expect the same impacts within the affected area.

Table 4-8 lists the types and numbers of all essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

The building exposure for Menard County, as determined from the building inventory, is included in Table 4-9. Because of the difficulty predicting which communities are at risk, the entire population and all buildings have been identified at risk.

Critical Facilities

All critical facilities are vulnerable to fire hazards. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural damage from fire and water damage from efforts extinguishing fire. Table 4-8 lists the types and numbers of essential facilities in the area. A map and list of all critical facilities is included as Appendix F.

Building Inventory

A table of the building exposure in terms of types and numbers of buildings for the entire county is provided in Table 4-9. Impacts to the general buildings within the county are similar to the damages expected to the critical facilities. These impacts include structural damage from fire and water damage from efforts to extinguish the fire.

Infrastructure

During a fire the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these items could become damaged during a fire. Potential impacts include structural damage resulting in impassable roadways and power outages.

Vulnerability to Future Assets/Infrastructure for Fire Hazard

Any future development will be vulnerable to these events.

Analysis of Community Development Trends

Fire hazard events may occur anywhere within the county, because of this future development will be impacted.

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Section 5 - Mitigation Strategy

The goal of mitigation is to reduce the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. The goal of mitigation is to build disaster-resistant communities. Mitigation actions and projects should be based on a well-constructed risk assessment, provided in Section 4 of this plan. Mitigation should be an ongoing process adapting over time to accommodate a community's needs.

5.1 Community Capability Assessment

The capability assessment identifies current activities used to mitigate hazards. The capability assessment identifies the policies, regulations, procedures, programs, and projects that contribute to the lessening of disaster damages. The assessment also provides an evaluation of these capabilities to determine whether the activities can be improved in order to more effectively reduce the impact of future hazards. The following sections identify existing plans and mitigation capabilities within all of the communities listed in Section 2 of this plan.

5.1.1 National Flood Insurance Program (NFIP)

Menard County, City of Athens, City of Petersburg, Village of Greenview, and Village of Oakford are members of the NFIP. The Village of Tallula does not have an identified flood hazard boundary, and therefore chooses not to participate in the program. Table 5-1 identifies each community and the date each participant joined the NFIP.

HAZUS-MH identified approximately 300 households located within the Menard County Special Flood Hazard Area; 15 households paid flood insurance, insuring $1,697,000 in property value. The total premiums collected amounted to $6,019, which on average was $208 annually. From 1978 through 2007, 28 claims were filed totaling $126,091. The average claim was $4,503.25.

The county and incorporated areas do not participate in the NFIP'S Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) reduce flood losses; 2) facilitate accurate insurance rating; and 3) promote the awareness of flood insurance.

Table 5-1: Additional Information on Communities Participating in the NFIP

Community	Participation Date	FIRM Date	CRS Date	CRS Rating	Floodplain Ordinance
Menard County	9/2/1988	5/4/2009	N/A	N/A	9/2/1988
City of Athens	12/10/2008	5/4/2009 (NSFHA)	N/A	N/A	12/10/2008
City of Petersburg	9/18/1986	5/4/2009	N/A	N/A	9/18/1986
Village of Greenview	9/2/1988	5/4/2009	N/A	N/A	9/2/1988
Village of Oakford	3/21/1976	5/4/2009	N/A	N/A	5/4/2009
Village of Tallula	N/A	5/4/2009	N/A	N/A	N/A

5.1.2 Stormwater Management Stream Maintenance Ordinance

There is no stormwater management ordinance in Menard County

5.1.3 Zoning Management Ordinance

Menard County, City of Athens, City of Petersburg, and the Village of Tallula all have zoning ordinances.

Table 5-2: Description of Zoning Plans/Ordinances

Community	Comp Plan	Zoning Ord	Subd Control Ord	Erosion Control	Storm Water Mgmt	Burning Ord	Seismic Ord	Bldg. Stndrds
Menard County	3/2/1997	1/1/1999	1/1/1999	N/A	N/A	N/A	N/A	N/A
City of Athens	N/A	10/11/1999	12/14/2009	N/A	N/A	1994	N/A	N/A
City of Petersburg	N/A	12/6/2003	5/18/2009	N/A	N/A	12/2006	N/A	N/A
Village of Greenview	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Village of Oakford	3/2/1997	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Village of Tallula	3/2/1997	11/14/2000	N/A	N/A	N/A	2/12/2008	N/A	N/A

5.1.4 Erosion Management Program/ Policy

Menard County does not have an erosion management program.

5.1.5 Fire Insurance Rating Programs/ Policy

Table 5-3 lists Menard County's fire departments and respective information.

Table 5-3: Menard County Fire Departments, Ratings, and Number of Firefighters

Fire Department	Fire Insurance Rating	Number of Firefighters
Athens Fire Protection District	6/9	24
Fancy Prairie Fire Protection District	9	20
Greenview Fire Protection District	7	23
Oakford Fire Protection District	9	15
Petersburg Fire Protection District	6/7/9	22
Tallula Fire Protection District	7/9	20

5.1.6 Land Use Plan

Menard County does not have a land use plan. However, land use plans are addressed within the Comprehensive Plan and the Zoning Ordinances.

5.1.7 Building Codes

Menard County and its incorporated jurisdictions have not adopted any building codes/standards.

5.2 Mitigation goals

In Section 4 of this plan, the risk assessment identified Menard County as prone to eight hazards. The MHMP planning team members understand that although hazards cannot be eliminated altogether, Menard County can work toward building disaster-resistant communities. Following are a list of goals, objectives, and actions. The goals represent long-term, broad visions of the overall vision the county would like to achieve for mitigation. The objectives are strategies and steps that will assist the communities in attaining the listed goals.

Goal 1: Lessen the impacts of hazards to new and existing infrastructure

(a) Objective: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.

(b) Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.

(c) Objective: Minimize the amount of infrastructure exposed to hazards.

(d) Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.

(e) Objective: Improve emergency sheltering in the community.

Goal 2: Create new or revise existing plans/maps for the community

(a) Objective: Support compliance with the NFIP.

(b) Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.

(c) Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.

Goal 3: Develop long-term strategies to educate community residents on the hazards affecting their county

(a) Objective: Raise public awareness on hazard mitigation.

(b) Objective: Improve education and training of emergency personnel and public officials.

5.3 Mitigation Actions/Projects

Upon completion of the risk assessment and development of the goals and objectives, the planning committee was provided a list of the six mitigation measure categories from the *FEMA State and Local Mitigation Planning How to Guides*. The measures are listed as follows:

- **Prevention:** Government, administrative, or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and stormwater management regulations.

- **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or removal from the hazard area. Examples include acquisition, elevation, structural retrofits, storm shutters, and shatter-resistant glass.

- **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

- **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

- **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.

- **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

After Meeting #3, held May 19, 2010, MHMP members were presented with the task of individually listing potential mitigation activities using the FEMA evaluation criteria. The MHMP members brought their mitigation ideas to Meeting #4 which was held July 28, 2010. The evaluation criteria (STAPLE+E) involved the following categories and questions.

Social:

- Will the proposed action adversely affect one segment of the population?
- Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?

Technical:

- How effective is the action in avoiding or reducing future losses?
- Will it create more problems than it solves?
- Does it solve the problem or only a symptom?
- Does the mitigation strategy address continued compliance with the NFIP?

Administrative:

- Does the jurisdiction have the capability (staff, technical experts, and/or funding) to implement the action, or can it be readily obtained?
- Can the community provide the necessary maintenance?
- Can it be accomplished in a timely manner?

Political:

- Is there political support to implement and maintain this action?
- Is there a local champion willing to help see the action to completion?
- Is there enough public support to ensure the success of the action?
- How can the mitigation objectives be accomplished at the lowest cost to the public?

Legal:

- Does the community have the authority to implement the proposed action?
- Are the proper laws, ordinances, and resolution in place to implement the action?
- Are there any potential legal consequences?
- Is there any potential community liability?
- Is the action likely to be challenged by those who may be negatively affected?
- Does the mitigation strategy address continued compliance with the NFIP?

Economic:

- Are there currently sources of funds that can be used to implement the action?
- What benefits will the action provide?
- Does the cost seem reasonable for the size of the problem and likely benefits?
- What burden will be placed on the tax base or local economy to implement this action?
- Does the action contribute to other community economic goals such as capital improvements or economic development?
- What proposed actions should be considered but be “tabled” for implementation until outside sources of funding are available?

Environmental:

- How will this action affect the environment (land, water, endangered species)?
- Will this action comply with local, state, and federal environmental laws and regulations?
- Is the action consistent with community environmental goals?

5.4 Implementation Strategy and Analysis of Mitigation Projects

Implementation of the mitigation plan is critical to the overall success of the mitigation planning process. The first step is to decide, based upon many factors, which action will be undertaken first. In order to pursue the top priority first, an analysis and prioritization of the actions is important. Some actions may occur before the top priority due to financial, engineering, environmental, permitting, and site control issues. Public awareness and input of these mitigation actions can increase knowledge to capitalize on funding opportunities and monitoring the progress of an action.

In Meeting #4, the planning team prioritized mitigation actions based on a number of factors. A rating of high, medium, or low was assessed for each mitigation item and is listed next to each item in Table 5-5. The factors were the STAPLE+E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria listed in Table 5-4.

Table 5-4: STAPLE+E planning factors

S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T – Technical	Mitigation actions are technically most effective if they provide a long-term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E – Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, comply with federal, state, and local environmental regulations, and are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

For each mitigation action related to infrastructure, new and existing infrastructure was considered. Additionally, the mitigation strategies address continued compliance with the NFIP. While an official cost benefit review was not conducted for any of the mitigation actions, the estimated costs were discussed. The overall benefits were considered when prioritizing mitigation items from high to low. An official cost benefit review will be conducted prior to the implementations of any mitigation actions. Table 5-5 presents mitigation projects developed by the planning committee, as well as actions that are ongoing or already completed. Since this is

the first mitigation plan developed for Menard County, there are no deleted or deferred mitigation items.

Table 5-5: Mitigation Strategies

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
Distribute weather radios to critical facilities	Goal: Improve hazard communication with public especially at-risk groups Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Tornado, Thunderstorm, Flood, Earthquake, Drought, Winter Storm	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Complete	Critical facilities throughout the county are equipped with weather radios.
Conduct a shelter capacity study to determine areas in need of shelters	Goal: Improve coordination of disaster response Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Petersburg	Complete	Shelters are established in Menard County based on American Red Cross-Illinois Chapter sheltering requirements. Petersburg fire house is an established shelter.
Institute voluntary buy-outs in areas of severe repetitive loss	Goal: Create new or revise existing plans/maps for the community Objective: Support compliance with the NFIP for each jurisdiction.	Flood	Petersburg	Complete	This project is complete.
Conduct a commodity flow study	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Hazmat	Menard County	In Progress	This project is in progress.
Trim trees to minimize the amount/duration of power outages	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Winter Storm	Menard County	Ongoing	This is an ongoing practice in Menard County.
Establish a database to identify special needs population	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Winter Storm	Menard County	Ongoing	This is an ongoing practice in Menard County.
Establish MABAS agreements with neighboring jurisdictions	Goal: Improve interoperability between jurisdictions during disaster reponse Objective: Improve education and training of emergency personnel and public officials	Hazmat	Menard County	Ongoing	The county has MABAS agreements in place for Hazmat response.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
Purchase generators and/or transfer switches to provide back-up power to critical facilities especially wastewater treatment facilities and water supplies wells	Goal: Improve local disaster response Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Ongoing/ High	The County and other jurisdictions will oversee the implementation of this project. A few shelters have back-up power, but all critical facilities should be equipped. Local resources will be used to determine which facilities should receive generators. Funding has not been secured as of 2010, but the pre-disaster mitigation program and community development grants are possible funding sources. If funding is available, this project is forecasted to begin within one year.
Conduct a siren coverage study and purchase additional sirens throughout the county as necessary	Goal: Improve disaster communication with public Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Thunderstorm	Menard County, Petersburg, Oakford, Tallula	High	The county's existing sirens are not sufficient. Funding has not been secured as of 2010, but the PDM program and community grants are an option. If funding is available, implementation will begin within one year.
Implement new plans for public education including distribution of literature regarding family safety measures	Goal: Develop long-term strategies to educate the community residents on the hazards affecting their county Objective: Raise public awareness on hazard mitigation.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	High	The County EMA will work with area schools, healthcare facilities, and businesses to implement this project. Funding will be sought from local sources. Implementation, if funding is available, will begin within one year.
Improve drainage relating to stormwater system in order to protect new and existing structures	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Oakford	High	The Oakford Public Works official will work with ILDOT and DNR to evaluate the current conditions of the county's waterways and drainage and develop a plan. Funding has not been secured as of 2010, but county, state, and federal funding will be sought. Implementation will begin within one year.
Develop a countywide stormwater management drainage plan	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.	Flood	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	High	The Engineer & Floodplain Manager will work with the local planning commission to review floodplain ordinances and create a stormwater ordinance. The MHMP planning committee will develop public education options to re-affirm the ordinances in the communities. If local, state, and federal resources are available, implementation of this project will begin within one year.
Flood-proof water supply well heads	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Flood		High	The local water departments and county engineer will work with DNR to oversee implementation of this project. Local resources and DNR are proposed sources of funding. Implementation will begin within one year.
Conduct a shelter capacity study to determine areas in need of shelters; establish new shelters and safe rooms	Goal: Lessen the impacts of potential disasters on the county's population. Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Medium	The County EMA will work with American Red Cross to establish the new shelters. Funding will be sought from local businesses and healthcare facilities. If funding is available, implementation will begin within three years.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
Implement Nixle for mass media release via e-mail and text messages	Goal: Improve communication with the public Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County	Medium	The County EMA will oversee this project. Local resources will be used to implement the project and notify the public. If resources are available, this project will begin within three years.
Develop or adapt guidelines or ordinances which require higher building and safety standards for storm-resistant public buildings	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Medium	The EMA director will oversee this project. The local planning commission will develop the guidelines working with outside engineers. Funding sources will include local, state, and federal agencies and community grant opportunities. Implementation will begin within three years.
Conduct a sewer upgrade to separate stormwater and sanitary sewer lines	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Athens, Greenview	Medium	Some communities in the county have CSO or plans in place but many require additional funding to complete the projects. Funding will be sought from IEPA, IEMA, and FEMA. Implementation will begin within three years if funding is available.
Construct a new EOC	Goal: Improve emergency operations in Menard County Objective: Retrofit critical facilities with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County	Low	The County EMA will oversee the implementation of this project. Funding has not been secured as of 2010, but the pre-disaster mitigation program and community development grants are possible funding sources. Implementation of this project will begin within five years.
Floodproof wastewater treatment plants and lift stations	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Athens, Petersburg	Low	The community officials and Floodplain Manager(s) will oversee the implementation of this project. Funding has not been secured as of 2010, but the pre-disaster mitigation program and community development grants are possible funding sources. Implementation of this project will begin within five years.
Repair levees and dams as necessary	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Reduce flood damages/risk	Flood	Menard County	Low	County or levee district engineer will work with the USACE on this project. Funding has not been secured as of 2010, but federal, state, and local agencies are possible sources. Implementation will begin within five years.
Conduct road improvements to reduce flooding: Altig Bridge Road, Gudgel Bridge Road, IL-97 near Lincoln's New Salem State Historic Site, Sunny Acres Road	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Flood	Menard County	Low	The County Engineer will oversee the implementation of this project. Local resources will be used to research options for signage. Funding has not been secured as of 2010, but the pre-disaster mitigation program, local resources, and ILDOT are possible funding sources. If funding is available, this project is forecasted to begin within five years.
Update the EAP for Lake Petersburg Dam	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing community plans and ordinances to support hazard mitigation.	Flood	Petersburg	Low	The County EMA will work with the dam owner to oversee the implementation of this project. Local resources will be used to develop the plans. Recommendations may be sought from IDNR. Implementation will begin within five years.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
Develop an evacuation plan for hazardous materials spills	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing community plans and ordinances to support hazard mitigation.	Hazmat	Menard County	Low	The County EMA will work with the local planning commission to develop the plan. If local, state, and federal resources are available, implementation of this project will begin within five years.
Conduct a study to determine availability of 4WD vehicles	Goal: Improve emergency transportation during severe winter weather. Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Winter Storm	Menard County	Low	The County EMA will coordinate this project. Local resources will be used to survey the availability and create a database. Implementation will begin within five years.
Map plowing routes for special needs individuals	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Winter Storm	Menard County	Low	The County Engineer will work with a GIS analyst and the County Highway Department to establish plow routes and create a map layer. Local resources will be used. If resources are available, implementation will begin within five years.
Implement natural snow fences/tree barriers	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Winter Storm	Menard County, Tallula	Low	The County Engineer will oversee implementation of this project. Local resources and IDOT will be used for funding. If funding is available, implementation will begin within five years.

The Menard County Emergency Management will be the local champions for the mitigation actions. The County Commissioners and the city and town councils will be an integral part of the implementation process. Federal and state assistance will be necessary for a number of the identified actions.

5.5 Multi-Jurisdictional Mitigation Strategy

As a part of the multi-hazard mitigation planning requirements, at least two identifiable mitigation action items have been addressed for each hazard listed in the risk assessment and for each jurisdiction covered under this plan.

Each of the five incorporated communities within and including Menard County was invited to participate in brainstorming sessions in which goals, objectives, and strategies were discussed and prioritized. Each participant in these sessions was armed with possible mitigation goals and strategies provided by FEMA, as well as information about mitigation projects discussed in neighboring communities and counties. All potential strategies and goals that arose through this process are included in this plan. The county planning team used FEMA's evaluation criteria to gauge the priority of all items. A final draft of the disaster mitigation plan was presented to all members to allow for final edits and approval of the priorities.

Section 6 - Plan Maintenance

6.1 Monitoring, Evaluating, and Updating the Plan

Throughout the five-year planning cycle, the Menard County Emergency Management Agency will reconvene the MHMP planning committee to monitor, evaluate, and update the plan on an annual basis. Additionally, a meeting will be held during February 2016 to address the five-year update of this plan. Members of the planning committee are readily available to engage in email correspondence between annual meetings. If the need for a special meeting, due to new developments or a declared disaster occurs in the county, the team will meet to update mitigation strategies. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual communities or through local partnerships.

The committee will review the county goals and objectives to determine their relevance to changing situations in the county. In addition, state and federal policies will be reviewed to ensure they are addressing current and expected conditions. The committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects, and will include which implementation processes worked well, any difficulties encountered, how coordination efforts are proceeding, and which strategies should be revised.

Updates or modifications to the MHMP during the five-year planning process will require a public notice and a meeting prior to submitting revisions to the individual jurisdictions for approval. The plan will be updated via written changes, submissions as the committee deems appropriate and necessary, and as approved by the county commissioners.

The GIS data used to prepare the plan was obtained from existing county GIS data as well as data collected as part of the planning process. This updated HAZUS-MH GIS data has been returned to the county for use and maintenance in the county's system. As newer data becomes available, this updated data will be used for future risk assessments and vulnerability analyses.

6.2 Implementation through Existing Programs

The results of this plan will be incorporated into ongoing planning efforts since many of the mitigation projects identified as part of this planning process are ongoing. Menard County and its incorporated jurisdictions will update the zoning plans and ordinances listed in Table 5-2 as necessary and as part of regularly scheduled updates. Each community will be responsible for updating its own plans and ordinances.

6.3 Continued Public Involvement

Continued public involvement is critical to the successful implementation of the MHMP. Comments from the public on the MHMP will be received by the EMA director and forwarded to the MHMP planning committee for discussion. Education efforts for hazard mitigation will be ongoing through the EMA. The public will be notified of periodic planning meetings through notices in the local newspaper. Once adopted, a copy of this plan will be maintained in each jurisdiction and in the County EMA Office.

APPENDICES

Glossary of Terms

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A

AEGL – Acute Exposure Guideline Levels
ALOHA – Areal Locations of Hazardous Atmospheres

B

BFE – Base Flood Elevation

C

CAMEO – Computer-Aided Management of Emergency Operations
CEMA – County Emergency Management Agency
CEMP – Comprehensive Emergency Management Plan
CERI – Center for Earthquake Research and Information
CRS – Community Rating System

D

DEM – Digital Elevation Model
DFIRM – Digital Flood Insurance Rate Map
DMA – Disaster Mitigation Act

E

EAP – Emergency Action Plan
ERPG – Emergency Response Planning Guidelines
EMA – Emergency Management Agency
EPA – Environmental Protection Agency

F

FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Rate Maps
FIS – Flood Information Study

G

GIS – Geographic Information System

H

HAZUS-MH – **Ha**zards **US**A **M**ulti-**H**azard
HUC – Hydrologic Unit Code

I

IDNR – Illinois Department of Natural Resources
IEMA – Illinois Emergency Management Agency
IDOT - Illinois Department of Transportation

M

MHMP – Multi-Hazard Mitigation Plan

N

NCDC – National Climatic Data Center
NEHRP – National Earthquake Hazards Reduction Program
NFIP – National Flood Insurance Program
NOAA – National Oceanic and Atmospheric Administration

P

PPM – Parts Per Million

R

RPI – Risk Priority Index

S

SPC – Storm Prediction Center
SWPPP – Storm water Pollution Prevention Plan

U

USGS – United States Geological Survey

Appendix A: Multi-Hazard Mitigation Plan Meeting Minutes

IEMA Pre-Disaster Mitigation Plan

Assembly of the Menard County Planning Team Meeting 1:
Chairman: Larry Graff, Coordinator for Menard County EMA
Plan Directors: SIUC Geology Department and IUPUI - Polis

Meeting Date: February 10, 2010

Meeting Time: 2 pm

Place: 113 W. Antler Street in Petersburg, IL in Community Building

Planning Team/Attendance:

Jonathan Remo	SIUC Geology
Megan Carlson	SIUC Geology
Jeff Heubner	Petersburg Fire
Matt Heubner	Petersburg Fire
Joe Crowe	Athens Fire
Bob Dowell	Athens Fire
Daniel Martin	Petersburg Police Dept
Jim Nimmo	Petersburg Street Dept
Steve Gutierrez	Retired-Capital Airport Police Fire Dept
Steve Duncan	Menard County
Roger Davis	Petersburg Water
Teresa Doll	American Red Cross
Marilyn Kelton	Menard Co. Soil and Water Conservation
Jim Schoenherr	City of Petersburg Zoning Administration
Matt Duncheon	City of Athens, Mayor
Jason P Upton	City of Athens
Jason D. LeMar	Office of Assessments
James B. Masten	Village President, Tallula
Alicia Davis	Menard County Health Department
Ron Steward	IEMA
Jared Owen	IEMA
Jason Sukut	Menard Co. EMS/EMA

Introduction to the Pre-Disaster Mitigation Planning Process

The meeting is called to order

Narrative: A power-point presentation was given by Jonathan Remo. He explained that this project is in response to the Disaster Mitigation Act of 2000. The project is funded by a grant awarded by FEMA. A twenty-five percent match will be required from the county to fund this project. The county match will be met by sweat equity and GIS data acquired from the County

Assessor's Office. The sweat equity will be an accumulation of time spent at the meetings, on research assignments, surveys, along with the time spent reviewing and producing the planning document.

Jonathan Remo introduced the Pre-Disaster Mitigation Website to the planning team. A username and password was given to the planning team, which will grant them access to the web site. The web site is used to schedule meetings, post contact information and download material pertaining to the planning process.

Jonathan Remo divided the planning project into five to six meetings. At the 1st meeting, the planning team will review critical facility maps. The planning team will be asked to research and verify the location of all critical facilities within the county. Jonathan stated that public participation is very important throughout the planning process. He explained that all of the meetings are open to the public but there will be a particular effort made to invite the public to the 3rd meeting. At that meeting, the SIUC Geology Department will present historic accounts of natural disasters that have affected this area. At the 2nd meeting the discussion will focus on natural disasters that are relevant to this area. These hazards will be given a probability rating and ranked by their occurrence and potential level of risk. Polis and SIUC Geology will research these hazards and present them to the planning team. The 3rd meeting is publicized in order to encourage public participation. Polis and SIUC Geology will produce a risk assessment in draft form; each planning team member will get a copy. Also they will present strategies and projects that FEMA and other counties have undertaken for the planning team to review. The 4th meeting consists of a brain storming session focused on disasters that were analyzed in the risk assessment report. The Planning Team will list strategies and projects that could be implemented to mitigate the potential hazards that threaten the county. FEMA requires that for every identified hazard, a strategy to mitigate the loss and damage must be in place. The strategies may range from educational awareness to hardening a building or building a levee. After the 4th meeting the plan will be in its final draft form. At the 5th meeting the planning team will need to review the plan prior to sending it to IEMA. IEMA will review the plan and will make recommendation to it as they see fit, then it is submitted to FEMA for review and approval. Once the plan has been submitted to FEMA, local governments are eligible to apply for grants to mitigate these established hazards. After FEMA approves the plan, it is sent back to the Planning Team. At the 6th meeting the Planning Team will present the Pre-Disaster Mitigation Plan to the County Board for adoption. Incorporated communities must either adopt the county plan or prepare its own plan, in order to access mitigation assistance from FEMA. The communities are encouraged to participate and contribute to development of the plan. Once the County Board has adopted the plan, each incorporated community will have the opportunity to adopt the plan as well.

Jonathan Remo then introduced Megan Carlson of SIUC. Megan Carlson presented three maps that identified critical facilities in the county. She asked the planning team to come up to review the maps to identify any corrections that need to be made to the maps. She assigned research homework arranged by categories to individual planning team members to locate missing or incorrect critical facilities.

Meeting was adjourned.

pg. 1

Mitigation

County Menard Date 2/10/2010 Location Petersburg, IL

Name	Affiliation	E-mail	Phone Number
Jeff Hevbner	Petersburg Fire, Menard Co 911 Menard Co SO	Hbgr40@hotmail.com	217-280-0074
MATT HEUBNER	PETERSBURG FIRE	Petersburgfire@hotmail.com	217-306-1299
Joe Crowe	Athens Fire	cjcrowe@casscomm.com	217-341-4502
Bob Dowell	Athens Fire Athens City Council	BobD4Ward1@Yahoo.com	217-891-3623
Daniel Martin	Petersburg Police Dept	Petersburgpd@casscomm.com rescuediver2236@hotmail.com	217-638-5531
Jim Nimmo	Petersburg Street Department	jimnimmo60@yahoo.com	(217) 416-6506
Steve Gutierrez	Retired-Capital Airport Police/Fire Dept	steven.gutierrez78@Yahoo.com	(217) 414-0126
Steve Duncan	Menard County	sduncan@co.menard.il.us	217-632-5123
Roger Davis	Petersburg Water	Pburg@GCCTV.com QH19@AOL.com	217-632-3082

County Menard Date 2/10/2010 Location Petersburg, IL

Name	Affiliation	E-mail	Phone Number
Teresa Doll	American Red Cross	tdolle il-redcross.org	787-7602 EXT 234
Marilyn Kelton	Menard Co Soil & Water Conservation	Marilyn.Kelton@il.nacdnet.net	
Jim Schoenherr	City of Petersburg Zoning Administrator	zoningadmin@petersburgil.org	632-3600
MATT DUNCHEON	CITY OF ATHENS MAYOR	DUNCHEONS@CASSCOMM.COM	636-2429
Jason P Upton	City of Athens	jasonupton@aol.com	(217) 415-2580
JASON P. LEMAR	Office of Assessments	jlemar@co.menard.il.us	217.632.4461
JAMES B MASTEN	VILLAGE PRESIDENT TALCULA	NONE	217 634 4655
Alice Davis	Menard County Health Dept	adavis@menardchd.org	217-632-2984
RON STEWARD	IEMA	ron.r.steward@illinois.gov	217 785-9858
JARED OWEN	IEMA	jared.owen@illinois.gov	217-557-5476
Jason Sukut	Menard Co. ESDA/EMS	sukuts08@yahoo.com	217-361-8022

IEMA Pre-Disaster Mitigation Plan

Assembly of the Menard County Planning Team Meeting 2:
Chairman: Larry Graff, Coordinator for Menard County EMA
Plan Directors: SIUC Geology Department and IUPUI - Polis

Meeting Date: March 24, 2010

Meeting Time: 1 pm

Place: 113 W. Antler Street in Petersburg, IL in Community Building

Planning Team/Attendance:

Jonathan Remo	SIUC Geology
Megan Carlson	SIUC Geology
Matt Duncheon	City of Athens
Trish Michels	Menard Electricity Coop.
Jason LeMar	Menard Co.
Jason Upton	City of Athens
Andrew Adams	Oakford
Julie Gillmore	Menard Co. SWCD
Buddy W King	Tallula Fire
Daniel Martin	Petersburg PD
Rod Harrison	Menard Co Sheriffs Dept
Jim Schoenherr	Petersburg
Tom Casson	Menard Co. Hwy
Tim Guinan	Lincoln's New Salem
Larry Graf	Menard County EMS/EMA
Roy Lee	Greenview City
Jason Sukut	Menard Co. EMS/EMA
Mile Burg	Menard Co EMS/EMA
John Stiltz	City of Petersburg
Anne Smith	Menard County Housing
Ronda Tippett	OBLS
Karen Short	Oakford Village Board
Alicia Davis	MC health Dept
Gary DePatis	Greenview CUSD200
Steve Duncan	Menard County

The meeting was called to order.

Jonathan Remo began the meeting by re-introducing the objectives of the PDM Planning document. The planning document is mandated as a result of the "Disaster Mitigation Act of 2000". Jonathan stated that the objective of the meeting was to prioritize a list of disasters that are relevant to Menard County.

Jonathan Remo provided the planning team with a handout to direct the focus of the meeting discussion. As Jonathan began to conduct the prioritizing process, he described the risk assessment ranking that FEMA has established.
Narrative: The Planning Team was then asked to assess and rank the hazards that could potentially befall Menard County using the risk priority index (RPI). The identified hazards were ranked as followed for Menard County:

#1: Tornado
#2: Fire\Explosion
#3: Thunderstorms/High Winds/Hail/Lightening
#4: Transportation Hazardous Material Release
#5: Winter Storms
#6: Flooding
#7: Drought/Extreme Heat
#8: Earthquake

Narrative: The planning team was then asked to analyze the historical weather events that have been plotted on a map of the county and communities therein. No corrections were noted by the planning team.

The planning team agreed to complete any missing information pertaining to critical facilities by the next meeting.

Meeting was adjourned.

Mitigation Meeting #2

March 24, 2010
1 p.m.

Name	Dept./Agency
MATT DONCHEON	CITY OF ATHENS
Josh Nichols	Menard Elect Coop
JASON LEMAR	MENARD CO
Jason Upton	City of Athens
Andrew W Adams	OAKFORD
Julie Gillmore	Menard Co SWCD
Buddy W King	Tallula Fire
Daniel Martin	Petersburg P.D.
Rod Harrison	Menard Co Sheriffs Dept.
Jim Schoenherr	Petersburg, City of
Tom Casson	Menard Co. Hwy.
Tim Guinan	Lincoln's New Salem
Lanny Graf	Menard Co. EMS/EMA
Roy Lee	Greenview city

pg 2

Name	Dept./Agency
Jason Sukut	Menard Co EMS/EMA
MIKE BURG	MENARD CO EMS/EMA
John Stietz	City of Petersburg
Anne Smith	Menard County Housing
Ronda Tippett	OBIS
KAREN SHORT	Oakford Village Board
Alicia Davis	MC Health Dept
Gary DePatis	Greenview CUSD 200
Steve Duncan	Menard Co

IEMA Pre-Disaster Mitigation Plan

Assembly of the Menard County Planning Team Meeting 3:
Chairman: Larry Graff, Coordinator for Menard County EMA
Plan Directors: SIUC Geology Department and IUPUI - Polis

Meeting Date: May 19, 2010

Meeting Time: 1:30 pm

Place: 113 W. Antler Street in Petersburg, IL in Community Building

Planning Team/Attendance:

Jonathan Remo	SIUC Geology
Megan Carlson	SIUC Geology
Jason Upton	City of Athens
Larry Graf	Menard Co. EMA/EMS
Roy Lee	Greenview Village/EMS
Teresa Doll	American Red Cross
James B Masten	Village of Tallula
Heath Jordan	Petersburg
Tom Casson	Menard Co. Hwy Dept.
Andrew Adams	Oakford
Bud King	Tallula Fire Dept
Matt Heubner	Petersburg Fire
Russ Steil	IEMA
Jim Schoenherr	Petersburg Zoning
Karen Short	Oakford
John Stiltz	City of Petersburg
Joe Crowe	Athens Fire Dept
Judy Olesen	Blane Real Estate
Steve Duncan	Menard County
Ronda Tippett	OBLS
Dean Heyen	Menard Co Health Dept
Gary Depatis	Greenview CUSD 200
Roger Davis	Petersburg Water
Jared Owen	IEMA

The meeting was called to order.

Jonathan Remo opened the meeting with an overview of the planning process and the roles of SIU and the Polis Center. Then he went on to explain the topics and objectives of the current meeting. Jonathan first presented the planning team with the list of hazards that the team had ranked by their level of risk from the previous meeting. He also presented a power point

presentation of the history of Menard County's past disasters. This included covering each hazard that the County had focused on, the history of each and then the mitigation strategies. He defined mitigation as the act of avoidance and preparedness.

A draft of the Menard County Mitigation Plan and a copy of Mitigation Ideas, produced by FEMA Region 5 in July 2002, was given to each of the planning team members for review. It was explained by Jonathan the contents of the booklet and that each of the planning team members should return to meeting 4 with three mitigation strategies for each of the hazards identified by the planning team.

Jonathan Remo then asked the audience for questions or comment. After some discussion about the plan and how it would affect the community and its residents, he thanked those who came and a closed the presentation.

Meeting was adjourned.

Hazard Mitigation Plan

Meeting #3

May 19, 2010

Name	Agency
Jason Upton	City of Athens
Larry Graf	Menard Co. EMA/EMS
Royce	Forrenview Village/EMS
Teresa Doll	American Red Cross
James B Masten	Village of Tallula
Heath Jordan	Petersburg
Tom Cagson	Menard Co. Hwy Dept
Andrew Adams	Athens
Burd Kay	Tallula Fire Dept
Matt Hebner	Petersburg Fire
Russ Steil	IEMA
Jim Schoenherr	Petersburg Zoning
Karen Shutt	Oakford
John Stiltz	City of Petersburg
Joe Crowe	Athens Fire Dept.
Judy Blane-Olesen	Blane Real Estate
Steve Duncan	Menard Co.
Ronda Tipped	~~OBIS~~ Menard Co. Health Dept
Neal Heyen	Greenview CUSD 202
Gary DePatis	Petersburg Water
Roger DAVIS	IEMA
Jared Owen	

IEMA Pre-Disaster Mitigation Plan

Assembly of the Menard County Planning Team Meeting 4:
Chairman: Larry Graff, Coordinator for Menard County EMA
Plan Directors: SIUC Geology Department and IUPUI – Polis

Meeting Date: July 28, 2010

Meeting Time: 1:30 pm

Place: 113 W. Antler Street in Petersburg, IL in Community Building

Jonathan Remo	SIUC Geology
Beth Elision	SIUC Geology
John Buechler	IUPUI – Polis
Ronda Tippett	OBLS
Andrew Adams	
Buddy King	Tallula Fire Dept
Jim Schoenherr	City of Petersburg
John Stiltz	City of Petersburg
Dean Heyen	MCHD
Chris Hinton	Menard Electric Coop
Jason Upton	City of Athens
Marilyn Kelton	SWCD
Steve Duncan	Menard County
James Masten	Village of Tallula
Anne Smith	Menard Co. Housing
Larry Graf	Menard Co. EMS/EMA
Jason LeMar	Menard Co. Supervisor of Assessments/GIS Officer

The meeting was called to order.

Jonathan Remo thanked everyone for attending the meeting and stated that if the planning team members needed extra mitigation strategy handbooks that they were available upon request. He introduced John Buechler from the Polis Center that was in Attendance that day also.

John Buechler began by explaining that today's meeting would cover mitigation strategies that the planning team believed would prevent or eliminate the loss of life and property. He explained that the planning team should not make any reservations in the form of money or resources when developing this list. Also whenever possible, the planning team was directed to be specific about the location or focus area of a strategy, in respect to being within a municipality or county wide. Each hazard was addressed one at a time. The planning team listed new and current on-going mitigation strategies in respect to each **hazard.** The planning team prioritized mitigation actions based on a number of factors. A rating of High, Medium, or Low was assessed for each mitigation item. Listed below are the New Mitigation Strategies that the Planning Team came up with, as well as a survey that was sent to communities that could not be present at Meeting #4 and wanted their input included in the mitigation strategies.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority
Distribute weather radios to critical facilities	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Tornado, Thunderstorm, Flood, Earthquake, Drought, Winter Storm	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Complete
Conduct a shelter capacity study to determine areas in need of shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Petersburg	Complete
Institute voluntary buy-outs in areas of severe repetitive loss	Goal: Create new or revise existing plans/maps for the community Objective: Support compliance with the NFIP for each jurisdiction.	Flood	Petersburg	Complete
Conduct a commodity flow study	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Hazmat	Menard County	In Progress
Trim trees to minimize the amount/duration of power outages	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Winter Storm	Menard County	Ongoing
Establish a database to identify special needs population	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Winter Storm	Menard County	Ongoing
Establish MABAS agreements with neighboring jurisdictions	Goal: Develop long-term strategies to educate the community residents on the hazards affecting their county Objective: Improve education and training of emergency personnel and public officials	Hazmat	Menard County	Ongoing
Purchase generators and/or transfer switches to provide back-up power to critical facilities especially wastewater treatment facilities and water supplies wells	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Ongoing/ High
Conduct a siren coverage study and purchase additional sirens throughout the county as necessary	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Thunderstorm	Menard County, Petersburg, Oakford, Tallula	High
Implement new plans for public education including distribution of literature regarding family safety measures	Goal: Develop long-term strategies to educate the community residents on the hazards affecting their county Objective: Raise public awareness on hazard mitigation.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	High
Improve drainage relating to stormwater system in order to protect new and existing structures	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Oakford	High

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority
Develop a countywide stormwater management drainage plan	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.	Flood	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	High
Flood-proof water supply well heads	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Flood		High
Conduct a shelter capacity study to determine areas in need of shelters; establish new shelters and safe rooms	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Medium
Implement Nixle for mass media release via e-mail and text messages	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County	Medium
Develop or adapt guidelines or ordinances which require higher building and safety standards for storm-resistant public buildings	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County, Athens, Petersburg, Greenview, Oakford, Tallula	Medium
Conduct a sewer upgrade to separate stormwater and sanitary sewer lines	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Athens, Greenview	Medium
Construct a new EOC	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Retrofit critical facilities with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Menard County	Low
Remove wastewater treatment plants and lift stations or otherwise flood-proof communities	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Athens, Petersburg	Low
Repair levees and dams as necessary	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Flood	Menard County	Low
Conduct road improvements to reduce flooding: Altig Bridge Road, Gudgel Bridge Road, IL-97 near Lincoln's New Salem State Historic Site, Sunny Acres Road	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Flood	Menard County	Low
Develop an EAP for Lake Petersburg Dam	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing community plans and ordinances to support hazard mitigation.	Flood	Petersburg	Low

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority
Develop an evacuation plan for hazardous materials spills	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing community plans and ordinances to support hazard mitigation.	Hazmat	Menard County	Low
Conduct a study to determine availability of 4WD vehicles	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Winter Storm	Menard County	Low
Map plowing routes for special needs individuals	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Winter Storm	Menard County	Low
Implement natural snow fences/tree barriers	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Winter Storm	Menard County, Tallula	Low

Survey From: Joe Crowe of Athens, Menard County, IL

Submit by E-mail | Print Form

MHMP Mitigation Strategies Survey

Southern Illinois University
205 Parkinson Laboratory
Carbondale, Illinois
62901
Phone: 618-453-7349
Fax: 618-453-7393

COUNTY: Menard
MUNICIPALITY: Athens
SURVEY RESPONDER: Joe Crowe, Fire Chief
TITLE: Athens Fire Chief
DATE: August 30, 2010

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
All Hazards	1	Public Education/Awareness	☐	☒	☐	
	2	Mutual Aid Agreements	☐	☒	☐	
	3	Back up Generators	☐	☒	☐	
	4	Enhanced Communications Systems (Specify)	☐	☒	☐	Down Radio Freq.
	5	NOAA Weather Radio	☐	☒	☐	
	6	Emergency Alert Systems/Sirens	☐	☒	☐	
	7	Animal Protection / Rescue	☒	☐	☐	
	8	Family Disaster Plans & Kits	☒	☐	☐	
Floods	9	Land Acquisition/Relocation/Structure Elevation	☒	☐	☐	
	11	Stormwater Mgmt. Ordinance or Amendments	☒	☐	☐	
	12	Floodplain Ordinance or Amendments	☒	☐	☐	
	13	Storm Drainage Systems/Maintenance	☒	☐	☐	
	14	Dam and/or Levee Maintenance	☒	☐	☐	
	17	Early Warning Systems	☒	☐	☐	
Tornado	18	Construction Standards/Techniques	☒	☐	☐	
	19	Safe Rooms/Shelters	☒	☐	☐	
	20	Anchoring of Manuf. Homes & Exterior Attachments	☒	☐	☐	
	21	Burying Power Lines	☒	☐	☐	
	22	Backup Power resources for critical facilities	☐	☒	☐	
	23	Tree Management/Trimming	☒	☐	☐	
Extreme Heat	25	Outreach/Public Awareness	☒	☐	☐	
	26	Burying Power Lines	☒	☐	☐	
	27	Heating and Cooling Centers / Shelters	☒	☐	☐	
	28	Code Enforcement/Bldg. Maintenance to prevent snow load or ice-dam issues	☒	☐	☐	
	29	Repair/Replace Structural Systems	☒	☐	☐	
	30	Animal Protection	☒	☐	☐	
	31	Snow Removal Equipment	☐	☒	☐	

Page 1 of 2

Athens - pg. 2
Joe Crowe

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
Earthquake	32	Mapping	☒	☐	☐	
	33	School Survey Procedures	☒	☐	☐	
	34	Capital Improvement Planning	☒	☐	☐	
	35	Bldg. Codes / Model Ordinances	☒	☐	☐	
	36	Infrastructure Hardening / Bridge Strengthening	☒	☐	☐	
	35	Outreach/Public Awareness	☒	☐	☐	
HAZMAT	36	Safety Procedures/Policies/Emergency Plan	☐	☒	☐	
	37	Local Emergency Planning Committee	☐	☒	☐	
	38	Risk Management Plan	☐	☒	☐	
	39	Industrial Site Buffering	☐	☐	☒	
	40	Emergency Response/Search & Rescue	☐	☒	☐	
	41	Haz-Mat spill Removal & Disposal Procedures	☐	☒	☐	
	42	Other (Specify)	☐	☐	☐	

Survey From: Matt Duncheon of Athens, Menard County, IL

Submit by E-mail | Print Form

MHMP Mitigation Strategies Survey

Southern Illinois University
205 Parkinson Laboratory
Carbondale, Illinois
62901
Phone: 618-453-7349
Fax: 618-453-7393

COUNTY:	MENARD
MUNICIPALITY:	ATHENS
SURVEY RESPONDER:	MATT DUNCHEON
TITLE:	MAYOR
DATE:	09-02-10

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
All Hazards	1	Public Education/Awareness	☑	☐	☐	
	2	Mutual Aid Agreements	☑	☐	☐	
	3	Back up Generators	☑	☐	☐	
	4	Enhanced Communications Systems (Specify)	☐	☐	☐	
	5	NOAA Weather Radio	☐	☑	☐	
	6	Emergency Alert Systems/Sirens	☐	☑	☐	
	7	Animal Protection / Rescue	☑	☐	☐	
	8	Family Disaster Plans & Kits	☑	☐	☐	
Floods	9	Land Acquisition/Relocation/Structure Elevation	☑	☐	☐	
	11	Stormwater Mgmt. Ordinance or Amendments	☑	☐	☐	
	12	Floodplain Ordinance or Amendsments	☑	☐	☐	
	13	Storm Drainage Systems/Maintenance	☐	☑	☐	
	14	Dam and/or Levee Maintenance	☐	☐	☑	
	17	Early Warning Systems	☐	☑	☐	
Tornado	18	Construction Standards/Techniques	☑	☐	☐	
	19	Safe Rooms/Shelters	☑	☐	☐	
	20	Anchoring of Manuf. Homes & Exterior Attachments	☑	☐	☐	
	21	Burying Power Lines	☑	☐	☐	
	22	Backup Power resources for critical facilities	☑	☐	☐	
	23	Tree Management/Trimming	☑	☐	☐	
Extreme Heat	25	Outreach/Public Awareness	☑	☐	☐	
	26	Burying Power Lines	☑	☐	☐	
	27	Heating and Cooling Centers / Shelters	☑	☐	☐	
	28	Code Enforcement/Bldg. Maintenance to prevent snow load or ice-dam issues	☑	☐	☐	
	29	Repair/Replace Structural Systems	☑	☐	☐	
	30	Animal Protection	☑	☐	☐	
	31	Snow Removal Equipment	☐	☑	☐	

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Athens Pg 2
Mayor Matt Duncheon

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
Earthquake	32	Mapping	☑	☐	☐	
	33	School Survey Procedures	☑	☐	☐	
	34	Capital Improvement Planning	☑	☐	☐	
	35	Bldg. Codes / Model Ordinances	☑	☐	☐	
	36	Infrastructure Hardening / Bridge Strengthening	☐	☑	☐	
HAZMAT	35	Outreach/Public Awareness	☑	☐	☐	
	36	Safety Procedures/Policies/Emergency Plan	☑	☐	☐	
	37	Local Emergency Planning Committee	☑	☐	☐	
	38	Risk Management Plan	☑	☐	☐	
	39	Industrial Site Buffering	☑	☐	☐	
	40	Emergency Response/Search & Rescue	☑	☐	☐	
	41	Haz-Mat spill Removal & Disposal Procedures	☑	☐	☐	
	42	Other (Specify)	☐	☐	☐	

Survey From: Bill Eddings of Greenview, Menard County, IL

Submit by E-mail | Print Form

MHMP Mitigation Strategies Survey

Southern Illinois University
205 Parkinson Laboratory
Carbondale, Illinois
62901
Phone: 618-453-7349
Fax: 618-453-7393

COUNTY: MENARD
MUNICIPALITY: GREENVIEW FIRE
SURVEY RESPONDER: WILLIAM EDDINGS
TITLE: FIRE CHIEF
DATE: 8/31/10

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
All Hazards	1	Public Education/Awareness	X			
	2	Mutual Aid Agreements		X		
	3	Back up Generators	X	X		
	4	Enhanced Communications Systems (Specify)			X	
	5	NOAA Weather Radio		X		
	6	Emergency Alert Systems/Sirens		X		
	7	Animal Protection / Rescue			X	
	8	Family Disaster Plans & Kits	X			
Floods	9	Land Acquisition/Relocation/Structure Elevation	X			
	11	Stormwater Mgmt. Ordinance or Amendments			X	
	12	Floodplain Ordinance or Amendments			X	
	13	Storm Drainage Systems/Maintenance			X	
	14	Dam and/or Levee Maintenance			X	
	17	Early Warning Systems		X		
Tornado	18	Construction Standards/Techniques			X	
	19	Safe Rooms/Shelters	X			
	20	Anchoring of Manuf. Homes & Exterior Attachments			X	
	21	Burying Power Lines			X	
	22	Backup Power resources for critical facilities	X			
	23	Tree Management/Trimming			X	
Extreme Heat	25	Outreach/Public Awareness	X			
	26	Burying Power Lines			X	
	27	Heating and Cooling Centers / Shelters		X		
	28	Code Enforcement/Bldg. Maintenance to prevent snow load or ice-dam issues			X	
	29	Repair/Replace Structural Systems			X	
	30	Animal Protection			X	
	31	Snow Removal Equipment			X	

Page 1 of 2

Green View pg 2
Bill Eddings

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
Earthquake	32	Mapping		X		
	33	School Survey Procedures			X	
	34	Capital Improvement Planning			X	
	35	Bldg. Codes / Model Ordinances			X	
	36	Infrastructure Hardening / Bridge Strengthening			X	
HAZMAT	35	Outreach/Public Awareness	X			
	36	Safety Procedures/Policies/Emergency Plan	X			
	37	Local Emergency Planning Committee	X			
	38	Risk Management Plan	X			
	39	Industrial Site Buffering	X			
	40	Emergency Response/Search & Rescue	X			
	41	Haz-Mat spill Removal & Disposal Procedures	X			
	42	Other (Specify)	X		X	

Survey From: James Masten of Tallula, Menard County, IL

Submit by E-mail | Print Form

MHMP Mitigation Strategies Survey

Southern Illinois University
205 Parkinson Laboratory
Carbondale, Illinois
62901
Phone: 618-453-7349
Fax: 618-453-7393

COUNTY: MENARD
MUNICIPALITY: VILLAGE OF TALLULA
SURVEY RESPONDER: JAMES B MASTEN
TITLE: VILLAGE PRESIDENT
DATE: 9-27-10

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
All Hazards	1	Public Education/Awareness	☒	☐	☐	
	2	Mutual Aid Agreements	☒	☐	☐	
	3	Back up Generators	☒	☐	☐	
	4	Enhanced Communications Systems (Specify)	☐	☐	☒	
	5	NOAA Weather Radio	☒	☐	☐	
	6	Emergency Alert Systems/Sirens	☒	☐	☐	
	7	Animal Protection / Rescue	☒	☐	☐	
	8	Family Disaster Plans & Kits	☐	☐	☐	
Floods	9	Land Acquisition/Relocation/Structure Elevation	☐	☐	☒	
	11	Stormwater Mgmt. Ordinance or Amendments	☐	☒	☐	
	12	Floodplain Ordinance or Amendsments	☐	☒	☐	
	13	Storm Drainage Systems/Maintenance	☒	☐	☐	
	14	Dam and/or Levee Maintenance	☐	☐	☒	
Tornado	17	Early Warning Systems	☒	☐	☐	
	18	Construction Standards/Techniques	☐	☐	☐	
	19	Safe Rooms/Shelters	☒	☐	☐	
	20	Anchoring of Manuf. Homes & Exterior Attachments	☐	☒	☐	
	21	Burying Power Lines	☐	☐	☒	
	22	Backup Power resources for critical facilities	☒	☐	☐	
	23	Tree Management/Trimming	☐	☒	☐	
Extreme Heat	25	Outreach/Public Awareness	☒	☐	☐	
	26	Burying Power Lines	☐	☐	☒	
	27	Heating and Cooling Centers / Shelters	☐	☒	☐	
	28	Code Enforcement/Bldg. Maintenance to prevent snow load or ice-dam issues	☐	☐	☒	
	29	Repair/Replace Structural Systems	☐	☐	☒	
	30	Animal Protection	☒	☐	☐	
	31	Snow Removal Equipment	☐	☒	☐	

Page 1 of 2

Jim Masten
Pg. 2

		MITIGATION MEASURE	Our community needs this mitigation measure	We have (or have initiated) this mitigation measure	Does not apply to our community	COMMENTS
Earthquake	32	Mapping	☐	☑	☐	
	33	School Survey Procedures	☒	☐	☐	
	34	Capital Improvement Planning	☐	☐	☐	
	35	Bldg. Codes / Model Ordinances	☐	☐	☒	
	36	Infrastructure Hardening / Bridge Strengthening	☐	☐	☒	
HAZMAT	35	Outreach/Public Awareness	☒	☐	☐	
	36	Safety Procedures/Policies/Emergency Plan	☒	☐	☐	
	37	Local Emergency Planning Committee	☐	☒	☐	
	38	Risk Management Plan	☐	☒	☐	
	39	Industrial Site Buffering	☐	☐	☒	
	40	Emergency Response/Search & Rescue	☒	☐	☐	
	41	Haz-Mat spill Removal & Disposal Procedures	☒	☐	☐	
	42	Other (Specify)	☐	☐	☐	

Hazard Mitigation Plan

Meeting #4

July 28, 2010

Name	Agency
Ronda Tyndall	OBIS
Andrew W Adams	Tallula Fire
Buddy W King	City of Petersburg
Jim Schoenherr	City of Petersburg
John STILTZ	MCHD
DEAN HEYEN	Menard Electric Coop
Chris Hinton	City of Athens
Jason Upton	IRDIANA UNIVERSITY
John Rueschler	SWCD
Marilyn Kelton	Menard County
Steve Duncan	Village of Tallula
James B Masten	Menard County Housing
Anne Smith	Menard Co. EMA.
Tony Day	Menard Co. Courthouse
JASON D. DEMAR	

IEMA Pre-Disaster Mitigation Plan

Assembly of the Menard County Planning Team Meeting 5:
Chairman: Larry Graff, Coordinator for Menard County EMA
Plan Directors: SIUC Geology Department and IUPUI – Polis

Meeting Date: October 13, 2010

Meeting Time: 1:30 pm

Place: 113 W. Antle Street in Petersburg, IL in Community Building

Planning Team/Attendance:

Ann Gorman	MCEMA
Larry Graf	MCEMA
Charles Jones	Menard County Sheriff
Buddy King	Tallula Fire
Marilyn Kelton	Soil & Water Conservation District
Steve Duncan	Menard County
Jason Upton	City of Athens
Lynn Frasco	Menard Elec. Cooperative
James Masten	Village of Tallula- Mayor
Karen Short	Village of Oakford
Teresa Doll	American Red Cross
Dean Heyen	Heath Department

The meeting was called to order.

Larry Graff opened the meeting with an overview of what was to happen from this point on with the plan. He stated that the plan could be reviewed by the Planning Team members for about 2 weeks so everyone would have ample amount of time look at and review the plan for any discrepancies. He also stated that in approximately 3 weeks the plan would be sent to IEMA/FEMA. They would then review it and if everything is OK with the plan, then we should hear back from IEMA/FEMA hopefully by February for their approval.

Larry then explained that once it comes back approved, then a Resolution will have to be passed by all municipalities. After they are passed, they needed to be returned Larry and he will forward them on to FEMA. Once FEMA gets the Resolutions, they will send notification that the municipality has a completed and approved plan.

He also explained that once the plan is submitted to IEMA/FEMA for their review, the municipalities can begin formulating and putting together their projects for funding. .

It was also explained to the planning team that FEMA will require a five-year update to the plan. Larry told the planning team that in another five years, the members should come together again, most likely under the direction of the ESDA Director, to review the plan and make any necessary changes to it. He explained that FEMA will probably send out a reminder as to when this is supposed to take place.

After Larry explained the above process, he pointed out specific tables and places in the plan that needed clarification from the team members. After discussing a few changes, the planning team members looked at the plan for a while longer.

Since there were no more comments about the plan, the meeting was adjourned.

Name	Agency
Chris Coleman	MCEMA
Gary Bragg	MC EMA
SHERRIE D. JONES	MENARD COUNTY SHERIFF
Buddy W King	Talla La Fire
Marilyn Kelton	Soil & Water Conservation Dist,
Steve Duncan	Menard County
Jason Upton	City of Athens
Lysa Frasco	Menard Elec Cooperative
James B Martin	VILLAGE OF TALLULA MAYOR
Karen Short	Village of Oakford
Teresa Doll	American Red Cross
Dean Hagel	Health Department

Appendix B: Local Newspaper Articles and Photographs

SJ-R.COM

The State Journal-Register • Springfield, IL • The Oldest Newspaper in Illinois

Menard County task force on natural disasters to meet

THE STATE JOURNAL-REGISTER
Posted May 18, 2010 @ 12:35 AM
Last update May 18, 2010 @ 10:24 AM

A task force formed in February to look at ways to lessen damage from natural disasters in Menard County will meet at 1:30 p.m. Wednesday at the Menard County Housing Authority's community building, 113 W. Antle St.

The Menard County Emergency Management Agency is working with Southern Illinois University at Carbondale to develop a hazard-mitigation plan. Those working on the plan include representatives from Athens, Greenview, Oakford, Petersburg and Tallula, among others.

Using historical and other data, the group recently evaluated potential risks, including tornadoes, flooding, winter storms, extreme heat and more. The task force eventually will propose steps that could be taken before a disaster to reduce loss of life and property.

"We want everyone's thoughts," said Menard County EMA coordinator Larry Graf, who can be reached at 632-7700 or by e-mail at lgraf@co.menard.il.us.

Comments (0)

Login or register to post a comment:
Login
Username:
Password:
Forgot password
Login
Register
Email:
First Name:
Last Name:
☐ I agree to the terms of use
☐ I am over 13 years of age
NOTE: Your inbox must accept emails from "no-reply@gatehousemedia.com"
Register

Hazard mitigation plan to be compiled for county

Observer: 2/4/10

PETERSBURG - The Menard County Emergency Management Agency has been awarded a grant for hazard mitigation planning.

As a result, a task force is being created to include representatives from each community in Menard County who choose to participate, as well as technical partners and other stakeholders.

The first meeting is at 2:00 p.m. on February 10 at the community room at 113 W. Antle in Petersburg. A total of five monthly meetings will be held, and public participation is strongly encouraged. Menard County residents are welcome to attend every meeting of the task force.

Menard County EMA is partnering with Southern Illinois University at Carbondale to develop the hazard mitigation plan, which is important to the welfare of everyone in the county.

The advantages of having this plan include protecting citizens and property from the effects of hazards such as tornadoes, flooding and winter storms, with the purpose of the plan to reduce the loss of life and property by identifying mitigation measures that can be implemented prior to a disaster.

Local input is imperative to this process. The goal is for all communities in the area to take part in this effort. Those who don't participate could jeopardize their ability to receive disaster funding in the event of an emergency.

Those with questions may contact Menard County EMA Coordinator Larry Graf at 632-7700.

May 13 Petersburg Observer

Public invited to May 19 mitigation plan meeting

A task force formed in February to look at ways to lessen damage from natural disasters in Menard County will meet Wednesday, May 19, at 1:30 p.m. at the Menard County Housing Authority's community building at 113 W. Antle St. in Petersburg. The public is encouraged to attend.

The Menard County Emergency Management Agency has partnered with Southern Illinois University at Carbondale to develop the county's hazard mitigation plan, which EMA coordinator Larry Graf says "is vital to the wellbeing of everyone in the county."

Team members working on the plan include representatives from Athens, Greenview, Oakford, Petersburg and Tallula, as well as technical partners and other stakeholders.

Using historical and other data, the group recently prioritized potential risks to the area, including tornadoes, flooding, winter storms, extreme heat and more. The task force eventually will propose mitigation measures that could be done prior to a disaster to help reduce loss of life and property.

Graf said local input is "essential," as the group looks at possible hazard mitigation projects throughout the community.

"We want everyone's thoughts,' he said.

Those with questions or comments may contact Graf at 632-7700 or by e-mail at lgraf@co.menard.il.us.

A federal grant administered by the Illinois Emergency Management Agency is helping cover the cost of developing the Menard County Hazard Mitigation Plan.

Appendix C: Adopting Resolutions

Resolution #_____

ADOPTING THE MENARD COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, Menard County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHERAS, Menard County participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Menard County Commissioners hereby adopt the Menard County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Menard County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2010.

_____
County Commissioner Chairman

_____
County Commissioner

_____
County Commissioner

_____
Attested by: County Clerk

Resolution #_____

ADOPTING THE MENARD COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the City of Athens recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHERAS, the City of Athens participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Athens hereby adopts the Menard County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Menard County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2010.

_____
City Mayor

_____
City Council Member

_____
City Council Member

_____
City Council Member

_____
City Council Member

_____
Attested by: City Clerk

Resolution #_____

ADOPTING THE MENARD COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the City of Petersburg recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHERAS, the City of Petersburg participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Petersburg hereby adopts the Menard County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Menard County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2010.

_____
City Mayor

_____
City Council Member

_____
City Council Member

_____
City Council Member

_____
City Council Member

_____
Attested by: City Clerk

Resolution #_____

ADOPTING THE MENARD COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Village of Greenview recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHERAS, the Village of Greenview participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Greenview hereby adopts the Menard County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Menard County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2010.

_____
City Mayor

_____
City Council Member

_____
City Council Member

_____
City Council Member

_____
City Council Member

_____
Attested by: City Clerk

Resolution #_____

ADOPTING THE MENARD COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Village of Oakford recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHERAS, the Village of Oakford participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Oakford hereby adopts the Menard County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Menard County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2010.

_____
Village President

_____
Village Council Member

_____
Village Council Member

_____
Village Council Member

_____
Village Council Member

_____
Attested by: Village Clerk

Resolution #_____

ADOPTING THE MENARD COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Village of Tallula recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHERAS, the Village of Tallula participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Tallula hereby adopts the Menard County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Menard County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2010.

_____
Village President

_____
Village Council Member

_____
Village Council Member

_____
Village Council Member

_____
Village Council Member

_____
Attested by: Village Clerk

Appendix D: NCDC Historical Hazards

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD	Descriptions
5 MENARD	6/16/1973	2135	Tornado	F0	0	0	0K	0	
51 Athens	7/28/1996	6:25 PM	Tornado	F0	0	0	0	0	A tornado briefly touched down in a field 2 miles south of Athens. No injuries or damage were reported.
75 Petersburg	5/12/1998	7:55 PM	Tornado	F0	0	0	0	0	A tornado briefly touched down in a field 2 miles east of Petersburg. No injuries or damage were reported.
89 Tallula	4/8/1999	7:54 PM	Tornado	F0	0	0	0	0	The tornado first touched down half a mile northeast of Sinclair (Morgan County). As it travelled to the northeast, it flipped over a mobile home and destroyed a barn near Yatesville. Nearby two outbuildings and a hog shelter were destroyed. As it approached Prentice, the tornado destroyed a small shed and carried parts of the shed over a nearby house then across the road to a field beyond, about 300 yards away. Windows on the house were blown out. As it continued to the northeast scouring marks could be seen in a field 1 mile southwest of Ashland (Cass County). The tornado entered Ashland on the southwest side of town around 851 PM CDT. It hit a trailer park, destroying 17 trailers and damaging 20. One woman was trapped under her mobile home for several hours. However, she died before they could pull her out. Six other people sustained injuries. As it travelled northeast through town, it destroyed one home, as well as, a city garage, and severely damaged 16 homes, a church, laundromat, and several brick buildings downtown. As it exited town it hit a grain elevator. However, the elevator appears to have broken up the tornado's circulation and no damage was reported to the elevator. North of Highway 125, it appears that the circulation became organized again, but much weaker. Plenty of debris from town was found in the field north of the highway. During a helicopter survey, scouring was evident in the field with the scouring marks splitting into two separate circulations, one going north northeast and the other more east northeast. After a short distance, about half a mile, both of the circulations dissipated. Damage in Ashland was estimated around $1,750,000.
149 Greenview	4/2/2006	5:22 PM	Tornado	F0	0	0	0	0	Tornado briefly touched down causing minor siding damage to one home.
2 MENARD	3/21/1966	1220	Tstm Wind	0 kts.	0	0	0	0	
3 MENARD	3/21/1966	1220	Tstm Wind	0 kts.	0	0	0	0	
4 MENARD	7/6/1969	2017	Tstm Wind	0 kts.	0	0	0	0	
6 MENARD	6/19/1974	1900	Tstm Wind	0 kts.	0	0	0	0	

7 MENARD	7/28/1974	300	Tstm Wind	0 kts.	0	0	0	0	
9 MENARD	4/13/1981	2254	Tstm Wind	56 kts.	0	0	0	0	
10 MENARD	10/5/1981	1715	Tstm Wind	70 kts.	0	0	0	0	
12 MENARD	11/1/1982	2008	Tstm Wind	0 kts.	0	0	0	0	
13 MENARD	6/23/1984	10	Tstm Wind	52 kts.	0	0	0	0	
17 MENARD	6/14/1986	1840	Tstm Wind	70 kts.	0	0	0	0	
19 MENARD	8/16/1987	2130	Tstm Wind	65 kts.	0	0	0	0	
20 MENARD	5/8/1988	1642	Tstm Wind	0 kts.	0	0	0	0	
21 MENARD	11/15/1988	2100	Tstm Wind	0 kts.	0	0	0	0	
22 MENARD	4/27/1990	1610	Tstm Wind	0 kts.	0	0	0	0	
23 MENARD	6/20/1990	5	Tstm Wind	65 kts.	0	0	0	0	
24 MENARD	5/17/1991	2040	Tstm Wind	0 kts.	0	0	0	0	
25 MENARD	7/1/1991	1625	Tstm Wind	0 kts.	0	0	0	0	
26 MENARD	10/4/1991	1715	Tstm Wind	0 kts.	0	0	0	0	
28 MENARD	6/13/1992	1345	Tstm Wind	0 kts.	0	0	0	0	

29 MENARD	7/2/1992	1441	Tstm Wind	0 kts.	0	0	0	0	
30 MENARD	7/2/1992	1640	Tstm Wind	0 kts.	0	0	0	0	
31 MENARD	7/2/1992	2018	Tstm Wind	52 kts.	0	0	0	0	
32 MENARD	7/29/1992	2149	Tstm Wind	0 kts.	0	0	0	0	
33 MENARD	9/9/1992	1700	Tstm Wind	0 kts.	0	0	0	0	
35 Atterberry	4/15/1994	315	Thunderstorm Winds	0 kts.	0	0	0	0	Thunderstorm winds blew down several trees one mile south of Atterberry.
36 Oakford	7/2/1994	1039	Thunderstorm Winds	0 kts.	0	0	0	0	Thunderstorm winds were estimated around 70 mph in Oakford by storm spotters. No damage has been reported. Several trees were blown down across a county road 7 W of Petersburg, near the Menard/Cass county line.
37 Petersburg	7/2/1994	1100	Thunderstorm Winds	0 kts.	0	0	0	0	Thunderstorm winds blew down numerous power lines, large trees, and tree limbs in Atterberry and Petersburg. Also, a barn was blown apart 3 W of Petersburg.
42 Sweet Water	6/21/1995	1958	Thunderstorm Winds	0 kts.	0	0	0	0	Numerous large trees and power lines were blown down.
48 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	3/25/1996	4:00 AM	High Wind	0 kts.	1	0	0	0	Strong gradient winds caused minor damage across Central Illinois and caused a bizzare accident which killed one person. Winds gusting to between 40 and 55 mph caused a bedliner and a concrete block to be blown from the bed of the pickup truck. The concrete block was thrown through the windshield of a car travelling in the opposite direction. The block hit the driver's chest killing him. The winds blew down numerous power lines, tore off the roof of a building in Rushville, and metal shething and insulation from the roof of a mobile home was blown off in Bloomington. M62VE
50 Athens	7/24/1996	12:20 PM	Tstm Wind	0 kts.	0	0	0	0	Thunderstorm winds blew down several large tree limbs, some of which knocked out a couple of powerlines in Athens. No injuries were reported and no damage estimate was available.

53 ILZ027>031 - 036>038 - 040>051 - 053	10/30/1996	1:00 AM	High Wind	56 kts.	0	0	0	0	High winds associated with a strong area of low pressure caused damage in numerous counties throughout Central Illinois. Sustained winds averaged 30 to 40 mph with gusts to near 65 mph in some areas. Most of the damage was to trees, tree limbs, and power lines. However, in Galesburg (Knox County) an addition to a church that was under construction was blown down. In Peoria (Peoria County), 3 busstop benches were blown over. One tree in Peoria Heights fell onto an unoccupied car causing major damage. Meanwhile, in Fulton County near Avon the high winds blew over a grain auger which in turn knocked down a light pole. In Pekin (Tazewell County), one tree fell onto a house causing damage to one bedroom. No injuries were reported. In Roanoke (Woodford County), the roof of a large storage building was blown off which damaged a small storage shed and a few trees when the roof landed on them. In Danville (Vermilion County), the high winds blew down the walls of a building under construction. No injuries were reported and no damage estimate was available from any of the counties who sustained damage.
59 Tallula	4/5/1997	3:00 PM	Tstm Wind	0 kts.	0	0	0	0	A narrow line of severe thunderstorms moved east across Central Illinois. Numerous trees, tree limbs, and power lines were blown down throughout the area with some areas sustaining more serious damage. However, no deaths or injuries were reported.
60 ILZ027>031 - 036>038 - 040>057 - 061>063	4/6/1997	9:15 AM	High Wind	56 kts.	0	0	0	0	The combination of a strong area of low pressure over Lake Superior and a strong area of high pressure over Texas created very high gradient winds over Central Illinois. Sustained winds averaged between 25 and 40 mph with higher gusts to 65 mph in some areas. These gradient winds blew down numerous trees, tree limbs, and power lines throughout Central Illinois. In Lincoln (Logan County), one tree fell onto a house damaging a porch and deck. No injuries were reported in this incident. Meanwhile, in Galesburg (Knox County) another tree fell onto a house causing extensive roof damage and broke a window in the home, though no injuries were reported. Two miles northeast of Castleton (Stark County), the winds destroyed a two story barn and in Woodford County near El Paso a semi was blown over on US 24, but no injuries were reported. No damage estimates were available for this event.

61 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	4/30/1997	2:00 PM	High Wind	61 kts.	0	1	38K	0	Strong gradient winds in excess of 50 mph with gusts to around 70 mph followed behind a line of severe thunderstorms as they marched across Central Illinois. The gradient winds lagged behind the thunderstorms by about 20 to 30 minutes and continued during the night finally letting up the next day, May 1st. Thousands of people across Central Illinois lost power for a time as hundreds of power lines were blown down. Several semis were blown over, with one trucker sustaining minor injuries when his semi was overturned near Jacksonville. Also, numerous trees and tree limbs were blown down and widespread structural damage was reported. The gradient winds blew down a 150 foot communications tower in Princeville (Peoria County). No injuries were reported. Homes in Manito (Mason County), Leroy (McLean County), Georgetown (Vermilion County), Effingham (Effingham County), and Olney (Richland County) sustained some damage due to trees falling on them. The gradient winds blew part of the roof off of a grade school gymnasium one mile west of De Land (Piatt County). Damage was estimated around $32,000 and no injuries were reported. Also, the winds blew the roof off of an apartment building in Towanda (McLean County), though no injuries were reported. Numerous sheds, grain bins, and machine sheds were either blown over, damaged, or destroyed by the gradient winds. Fortunately no deaths or serious injuries were reported.
62 Greenview	7/19/1997	5:32 PM	Tstm Wind	0 kts.	0	0	0	0	Numerous trees and tree limbs were blown down in the Greenview area.
63 Athens	7/19/1997	6:25 PM	Tstm Wind	0 kts.	0	1	0	0	Thunderstorm winds blew a tent over in a park in Athens resulting in a minor injury to one person. Also, numerous power lines and tree limbs were blown down. No other injuries were reported and no damage estimate was available.
65 Countywide	8/15/1997	3:05 AM	Tstm Wind	0 kts.	0	0	0	0	Numerous tree limbs and power lines were blown down countywide. No injuries were reported and no damage estimate was available.
67 ILZ027>031 - 036>038 - 040>053	9/29/1997	10:00 AM	High Wind	55 kts.	0	0	0	0	A strong area of low pressure centered over Lake Superior created strong gradient winds over a large portion of the upper midwest. Sustained winds ranged from 25 to 35 mph with gusts to over 60 mph. Numerous trees, tree limbs, and power lines were blown down. One tree in Urbana (Champaign County) fell, crashing into the corner of a garage and the back roof of one residence. The structures sustained minor damage and no injuries were reported. Another tree in Bloomington (McLean County) fell causing minor damage to the front porch of one residence. In Rushville (Schuyler County), the high winds caused damage to the roof of the Rushville High School gym. No injuries were reported there. In Chillicothe (Peoria County), a large tree fell down causing considerable damage to a garage and a nearby shed. No injuries were reported. No damage estimates were available for any of the damage reported.
73 Petersburg	3/27/1998	6:30 PM	Tstm Wind	0 kts.	0	0	0	0	Thunderstorm winds blew down numerous trees along Route 97 two miles south of Petersburg and destroyed a transformer in Athens. No injuries were reported and no damage estimate was available.

76 Oakford	5/24/1998	12:50 AM	Tstm Wind	0 kts.	0	0	0	0	Thunderstorm winds blew down a large tree onto Hwy 97 three miles south of Petersburg. Also, numerous tree limbs were blown down. No injuries or structural damage were reported.
77 Athens	6/11/1998	2:15 PM	Tstm Wind	0 kts.	0	0	0	0	Thunderstorm winds broke off ten power poles at the base of each. Also, numerous large tree limbs were blown down and one window was blown out on a house. No injuries were reported and no damage estimate was available.
79 Petersburg	6/28/1998	6:40 PM	Tstm Wind	0 kts.	0	3	0	0	Thunderstorm winds blew down a beer tent at the county fair. The tent injured 3 people, one seriously. Also, numerous trees, tree limbs, and power lines were blown down countywide.
80 Countywide	6/29/1998	3:50 PM	Tstm Wind	0 kts.	0	0	0	0	A large bow echo system developed over eastern Iowa and moved rapidly to the southeast into Illinois. It moved into Central Illinois's County Warning Area (CWA) around 4 pm in Knox County and exited the CWA (Lawrence County) around 830 pm. Damage was reported in all 35 counties with this system. The overall general area of wind damage was produced by the passage of the bow echo's "gust front" on the leading edge of the line of thunderstorms. Wind speeds were measured or estimated to be between 60 to 80 mph, blowing down or uprooting thousands of trees, tree limbs, power poles, and power lines. Hundreds of trees fell onto structures causing damage ranging from just torn guttering to major roof and structural damage. Also, hundreds of vehicles sustained damage from fallen trees and numerous outbuildings, sheds, and silos were either damaged or destroyed. Considerable crop damage was sustained in most areas. In some areas, more intense damage was observed, caused by stronger wind speeds. Speeds were measured or estimated in these areas at 100 to 110 mph. These areas of damage were apparently "microbursts" produced by a series of mesocyclones that formed on the forward edges of the bow echo. These microbursts, or swaths of more intense wind damage were generally about 1/2 a mile in width. In these areas significant structural damage occurred, such as peeling off roofs, blowing over freight railroad cars, bending steel power poles, and other structural damage. A third phenomena that occurred with this event were spin-up tornadoes along the leading edge of the bow echo structure. These tornadoes caused significant damage in narrow swaths along the bow echo's path and were often masked by the microburst damage occurring adjacent to them. Based on valid spotter observations and mesocyclone signatures on doppler radar, the existence of these tornadoes was validated. Overall, approximately twelve people sustained injuries and damage was estimated around $16 million.
81 Petersburg	7/22/1998	11:44 AM	Tstm Wind	0 kts.	0	0	0	0	Thunderstorm winds blew down several trees and numerous tree limbs in an area between Petersburg and 3 miles north of Athens. No injuries were reported.
82 Petersburg	10/29/1998	2:35 PM	Tstm Wind	52 kts.	0	0	0	0	

84 ILZ027>031 - 036>038 - 040>057 - 061>063	11/10/1998	4:30 AM	High Wind	57 kts.	0	1	60K	0	A strong storm system moved across the Midwest which ushered in a line of severe thunderstorms. About an hour after the storms passed strong gradient winds developed and continued until the late afternoon hours. Winds gusted to over 50 mph at times with sustained winds well over 35 mph. Thousands of power lines and tree limbs were blown down throughout Central Illinois and hundreds of trees were blown over. High winds ripped sheet metal from a storage tank containing ammonia near Creve Coeur (Tazewell County). Some pieces of sheet metal sheared open two relief valves, releasing gas fumes into the air. Homes in the area were evacuated. No one was injured and the leak was soon fixed. The high winds prevented the gas fumes from stagnating over the area. The winds destroyed a shed just south of Galesburg (Knox County) causing $60,000 in damage. Also, a semi was blown over. The driver received minor injuries but refused treatment. In St. David (Fulton County) the winds ripped off the roof of a home. Also, a large tree limb fell causing minor damage to a back porch and a car. The winds caused minor facade damage to a home in Jacksonville (Morgan County).
85 Tallula	11/10/1998	4:35 AM	Tstm Wind	0 kts.	0	0	0	0	In Tallula, a shed was destroyed. Several other sheds were either damaged or destroyed in the Petersburg area. Numerous trees and power lines were blown down. Also, one home sustained minor damage 3 miles north northeast of Petersburg. A wall on the attached garage was damaged. No injuries were reported and no damage estimate was available.
92 Petersburg	8/12/1999	6:45 PM	Tstm Wind	59 kts.	0	0	75K	6.0M	Trees were blown down countywide, as well as, 11 power poles along Route 29 just north of Athens. One tree fell onto a house and truck just north of Petersburg. No injuries were reported. Thousands of acres of corn were flattened, especially in the northern part of the county. Damage to the crops was estimated around $6 million.
93 Petersburg	8/23/1999	6:10 PM	Tstm Wind	0 kts.	0	0	0K	0	Several trees and tree limbs were blown down.
94 Countywide	4/20/2000	4:40 AM	Tstm Wind	70 kts.	0	0	0	0	Numerous trees, tree limbs, power poles, and power lines were blown down countywide. Also, several sheds were destroyed and a couple of irrigation rigs were blown over.
96 Petersburg	6/20/2000	5:20 PM	Tstm Wind	61 kts.	0	0	0	0	Numerous large tree limbs blown down.
99 Petersburg	4/11/2001	2:09 PM	Tstm Wind	53 kts.	0	0	0	0	
100 Athens	5/22/2001	1:00 PM	Tstm Wind	50 kts.	0	0	0	0	Large tree blown down, with no structural damage reported.
101 Petersburg	5/22/2001	11:37 AM	Tstm Wind	51 kts.	0	0	0	0	Several trees and tree limbs were blown down.

102 Petersburg	7/4/2001	8:58 PM	Tstm Wind	50 kts.	0	0	0	0	A large tree was blown down over Illinois Route 97 seven miles south of Petersburg.
103 Petersburg	7/17/2001	3:36 PM	Tstm Wind	50 kts.	0	0	0	0	A large tree was blown over onto a delivery truck causing minor damage. Also, numerous other trees, tree limbs and power lines were blown down.
105 Petersburg	8/22/2001	7:15 PM	Tstm Wind	50 kts.	0	0	0	0	Small tree limbs were blown down in town.
106 Countywide	4/19/2002	7:00 PM	Tstm Wind	55 kts.	0	0	0	0	Numerous trees and powerlines and were blown down countywide. Also, a propane tank was blown over just south of Athens.
107 Tallula	4/24/2002	2:00 PM	Tstm Wind	50 kts.	0	0	0	0	Thunderstorm winds blew down 10 power poles 3 miles southwest of Tallula.
113 Countywide	7/22/2002	5:40 PM	Tstm Wind	50 kts.	0	0	0	0	Numerous trees, tree limbs, and power lines were blown down countywide.
115 Greenview	12/18/2002	12:35 AM	Tstm Wind	55 kts.	0	0	0	0	A line of severe thunderstorms moved northeast across Western Illinois causing sporadic wind damage. As the storms moved into Alsey (Scott Co.) a large power pole was snapped off and fell across Illinois Route 106 on the south side of town. Several other power poles were broken off about half a mile further northeast along the Alsey/Manchester Road. Also, numerous trees and tree limbs were blown down in this area. When the storms moved through Jacksonville (Morgan Co.), a three mile long path of damage was created. Numerous trees, tree limbs, power lines and power poles were blown down. Some of the fallen trees destroyed several garages, cars and the roof of one house. Also, a 35 foot by 40 foot section of roof was blown off of the Morgan County Courthouse and a 50 foot tall fire dispatch radio tower was blown down. In northeastern Morgan County, near Prentice, a tree and a grain bin were blown over onto power lines. As the storms moved through Ashland (Cass Co.), several trees were blown down but no structures were damaged. In Greenview (Menard Co.), a large tree was blown down onto a house causing minor damage.
119 Oakford	4/4/2003	2:34 PM	Tstm Wind	55 kts.	0	0	0	0	Thunderstorm winds blew a car off the road. No injuries were reported. Also, a utility pole was snapped off 3 miles north of Greenview.
126 Petersburg	5/24/2004	11:15 PM	Tstm Wind	50 kts.	0	0	0	0	Several large tree limbs were blown down around town.
128 Greenview	5/30/2004	4:00 PM	Tstm Wind	55 kts.	0	0	0	0	Thunderstorm winds blew down several trees and power lines. Also, a small section of the high school roof was blown off and part of the roof of a barn was damaged.
129 Petersburg	6/10/2004	4:53 PM	Tstm Wind	51 kts.	0	0	0	0	

130 Oakford	8/9/2004	5:15 PM	Tstm Wind	52 kts.	0	0	0	0	Two large trees were blown down.
133 Greenview	10/29/2004	10:54 PM	Tstm Wind	55 kts.	0	0	0	0	Power lines down in Greenview.
134 Petersburg	6/8/2005	2:30 PM	Tstm Wind	50 kts.	0	0	0	0	Two large trees blown down at New Salem State Park.
135 Athens	6/13/2005	5:15 PM	Tstm Wind	50 kts.	0	0	0	0	A few tree limbs blown down.
137 Greenview	8/19/2005	8:35 PM	Tstm Wind	50 kts.	0	0	0	0	Power lines blown down.
138 Petersburg	8/19/2005	12:22 AM	Tstm Wind	50 kts.	0	0	0	0	A few trees and tree limbs were blown down.
140 Oakford	11/5/2005	8:53 PM	Tstm Wind	50 kts.	0	0	0	0	Power lines blown down.
142 Greenview	11/5/2005	9:00 PM	Tstm Wind	50 kts.	0	0	0	0	Large tree limbs blown down.
144 Greenview	3/11/2006	6:30 PM	Tstm Wind	50 kts.	0	0	0	0	Power lines blown down.
145 Petersburg	3/13/2006	3:00 AM	Tstm Wind	52 kts.	0	0	0	0	
146 Tallula	4/2/2006	4:53 PM	Tstm Wind	52 kts.	0	0	0	0	
147 Petersburg	4/2/2006	4:55 PM	Tstm Wind	60 kts.	0	0	0	0	Roof partially blown off building.
148 Oakford	4/2/2006	5:05 PM	Tstm Wind	52 kts.	0	0	0	0	
152 Greenview	4/18/2006	10:45 PM	Tstm Wind	60 kts.	0	0	0	0	20 power poles were snapped off along Route 29 near Salt Creek.
153 Athens	5/24/2006	2:28 PM	Tstm Wind	50 kts.	0	0	0	0	A few trees were uprooted.

154 Greenview	7/19/2006	3:46 PM	Tstm Wind	52 kts.	0	0	0	0	Numerous trees and power lines were blown down around town. Falling trees damaged a deck and swimming pool in a local yard.
157 Greenview	9/22/2006	5:23 PM	Tstm Wind	50 kts.	0	0	0	0	Numerous large tree branches were blown down.
164 Sweet Water	5/15/2007	11:55 AM	Thunderstorm Wind	55 kts.	0	0	0K	0K	EPISODE NARRATIVE: Thunderstorms fired along and ahead of a cold front passing through central Illinois. Several of the storms produced severe wind gusts.
166 ILZ048	12/23/2007	1:30 AM	High Wind	60 kts.	0	0	18K	0K	EVENT NARRATIVE: High wind damaged two house roofs and a garage in Athens. One of the roofs was partially lifted off, while the other one sustained shingle damage. EPISODE NARRATIVE: A strong cold front pushed through central Illinois during the late evening and overnight hours from December 22nd into the 23rd. Several reports of damaging straight line wind gusts were received shortly after frontal passage. Most of the damage impacted tree limbs, power lines and outbuildings.
171 ILZ048	5/11/2008	7:45 AM	Strong Wind	45 kts.	0	0	4K	0K	EVENT NARRATIVE: Two trees blown down near Athens from 50 to 55 mph winds. EPISODE NARRATIVE: Strong low pressure moved across central Illinois during the daytime hours on Mothers Day. The strong pressure gradient with this storm produced widespread winds of 40 to 50 mph. A few wind gusts up to 61 mph were reported. The winds blew down numerous tree limbs and a few trees.
172 Culver	5/13/2008	13:11 PM	Thunderstorm Wind	55 kts.	0	0	7K	0K	EVENT NARRATIVE: Strong winds broke off the top of a couple healthy trees. The winds also caused minor roof damage to an outbuilding and a barn. EPISODE NARRATIVE: Scattered thunderstorms developed during the afternoon and early evening hours ahead of a cold front. The initial storms produced a few severe wind gusts, though the storms rapidly evolved to significant hail producers.
173 Oakford	6/3/2008	9:11 AM	Thunderstorm Wind	61 kts.	0	0	40K	0K	EVENT NARRATIVE: Numerous trees, power lines, and power poles were blown down across Menard County. A concentrated area of 17 power poles was blown down on Route 29 just north of Greenview. EPISODE NARRATIVE: Several rounds of thunderstorms moved through central Illinois during the morning hours of the 3rd. The main threat during the early morning hours was heavy rain and flooding, while a large bow echo later in the morning produced widespread wind damage.
188 ILZ048	3/8/2009	12:55 PM	High Wind	52 kts.	0	0	15K	0K	EVENT NARRATIVE: A metal roof was blown off a mobile home causing damage to a car in Greenview. EPISODE NARRATIVE: After the passage of a strong cold front, gradient winds gusted as high as 50 to 60 mph across central Illinois during the afternoon and evening of March 8th. Numerous reports of wind damage were received from across the area.

191 Greenview	5/7/2009	16:10 PM	Thunderstorm Wind	52 kts.	0	0	4K	0K	EVENT NARRATIVE: Several branches were blown down in eastern Menard County. EPISODE NARRATIVE: A slow-moving cold front triggered thunderstorms across western Illinois during the late afternoon of May 7th. The storms spread southeastward across south-central Illinois during the evening hours, producing numerous reports of large hail and damaging winds mainly along and south of a Petersburg...to Lincoln...to Effingham line.
192 Greenview	5/7/2009	16:11 PM	Thunderstorm Wind	52 kts.	0	0	6K	0K	EVENT NARRATIVE: A power pole was knocked down and shingles were blown off a roof. EPISODE NARRATIVE: A slow-moving cold front triggered thunderstorms across western Illinois during the late afternoon of May 7th. The storms spread southeastward across south-central Illinois during the evening hours, producing numerous reports of large hail and damaging winds mainly along and south of a Petersburg...to Lincoln...to Effingham line.
198 Athens	5/15/2009	18:00 PM	Thunderstorm Wind	55 kts.	0	0	15K	0K	EVENT NARRATIVE: Large tree limbs were blown down in Athens. EPISODE NARRATIVE: A warm front lifted northward into the region during the early morning hours of May 15th, triggering a large complex of thunderstorms across Iowa. These storms tracked eastward into north-central Illinois producing very heavy rain west of the Illinois River during the morning. Additional strong to severe thunderstorms developed further south along the warm front in the afternoon. These storms produced numerous reports of large hail, heavy rainfall, and flash flooding - including a fatality in a vechicle due to high water late in the evening. This was the second heavy rain episode within three days in central Illinois. There were also isolated reports of wind damage in central Illinois.
199 Greenview	7/24/2009	22:50 PM	Thunderstorm Wind	52 kts.	0	0	2K	0K	EVENT NARRATIVE: A large tree was blown down in Greenview. EPISODE NARRATIVE: A large complex of thunderstorms ahead of an approaching cold front swept across central Illinois from the late evening of July 24th into the early morning hours of the 25th. Thunderstorm wind gusts of 60 to 70 mph accompanied the storms, producing widespread wind damage across the region.
1 MENARD	3/21/1966	1215	Hail	2.00 in.	0	0	0	0	
8 MENARD	4/13/1981	2149	Hail	1.75 in.	0	0	0	0	
11 MENARD	4/16/1982	1830	Hail	1.75 in.	0	0	0	0	
14 MENARD	4/30/1986	1620	Hail	1.00 in.	0	0	0	0	
15 MENARD	5/6/1986	1623	Hail	0.88 in.	0	0	0	0	

16 MENARD	6/14/1986	1735	Hail	1.75 in.	0	0	0	0	
18 MENARD	7/10/1986	1703	Hail	0.75 in.	0	0	0	0	
27 MENARD	12/8/1991	1439	Hail	2.50 in.	0	0	0	0	
38 Petersburg	7/20/1994	1650	Hail	1.75 in.	0	0	0	0	
39 Petersburg	5/16/1995	530	Hail	0.75 in.	0	0	0	0	
52 Greenview	7/28/1996	6:25 PM	Hail	2.00 in.	0	0	0	0	
58 Athens	3/28/1997	3:15 PM	Hail	1.75 in.	0	0	0	0	
66 Petersburg	8/24/1997	4:33 PM	Hail	1.75 in.	0	0	0	0	
74 Oakford	5/12/1998	7:40 PM	Hail	1.75 in.	0	0	0	0	
83 Athens	10/29/1998	2:56 PM	Hail	0.75 in.	0	0	0	0	
95 Petersburg	5/12/2000	2:43 PM	Hail	1.25 in.	0	0	0	0	
97 Petersburg	8/26/2000	7:51 PM	Hail	1.25 in.	0	0	0	0	
98 Oakford	4/5/2001	12:26 PM	Hail	0.75 in.	0	0	0	0	
104 Atterberry	8/18/2001	1:11 PM	Hail	1.00 in.	0	0	0	0	
109 Petersburg	5/1/2002	1:20 PM	Hail	1.00 in.	0	0	0	0	

110 Fancy Prairie	5/7/2002	12:36 AM	Hail	1.00 in.	0	0	0	0	
112 Petersburg	6/1/2002	9:44 AM	Hail	0.75 in.	0	0	0	0	
114 Greenview	8/16/2002	7:34 AM	Hail	0.75 in.	0	0	0	0	Very heavy rain fell in a short amount of time causing several roads to become flooded. Illinois Route 121 south of Chestervale (Logan Co.) and county road 800E northwest of Wapella (DeWitt Co.) were flooded for a time.
116 Oakford	2/3/2003	10:43 AM	Hail	0.88 in.	0	0	0	0	
118 Oakford	4/4/2003	2:04 PM	Hail	1.50 in.	0	0	0	0	
120 Oakford	4/4/2003	2:36 PM	Hail	2.00 in.	0	0	0	0	
121 Petersburg	4/4/2003	3:31 PM	Hail	1.50 in.	0	0	0	0	
122 Petersburg	4/30/2003	4:30 AM	Hail	0.75 in.	0	0	0	0	
123 Petersburg	5/9/2003	6:24 PM	Hail	1.75 in.	0	0	0	0	Three quarter inch hail was reported throughout the county with one report of golfball sized hail at the New Salem State Park.
124 Greenview	5/2/2004	12:15 PM	Hail	0.75 in.	0	0	0	0	
125 Petersburg	5/24/2004	9:51 PM	Hail	0.88 in.	0	0	0	0	
127 Greenview	5/30/2004	4:00 PM	Hail	1.00 in.	0	0	0	0	
131 Tallula	8/25/2004	1:40 PM	Hail	1.00 in.	0	0	0	0	
139 Tallula	9/19/2005	5:07 PM	Hail	0.75 in.	0	0	0	0	
141 Petersburg	11/5/2005	8:56 PM	Hail	0.88 in.	0	0	0	0	

143 Tallula	3/11/2006	6:13 PM	Hail	0.88 in.	0	0	0	0	
150 Tallula	4/7/2006	4:07 PM	Hail	1.75 in.	0	0	0	0	
151 Petersburg	4/14/2006	8:40 AM	Hail	1.25 in.	0	0	0	0	
167 Petersburg	1/29/2008	13:07 PM	Hail	0.88 in.	0	0	0K	0K	EPISODE NARRATIVE: A strong cold front raced across Illinois during the afternoon hours of January 29th. Severe thunderstorms developed ahead of the front, producing damaging wind gusts and large hail.
174 Oakford	6/3/2008	19:24 PM	Hail	1.00 in.	0	0	0K	0K	EPISODE NARRATIVE: Strong to severe thunderstorms developed across central Illinois during the evening of June 3rd. The worst of the storms were centered along the I-72 corridor from near Winchester northeastward to Champaign-Urbana, where numerous reports of hail and gusty winds were received. These storms also produced very heavy rainfall in some locations and produced flooding. In addition, a tornado touched down in Scott County near Alsey.
177 Athens	6/22/2008	15:52 PM	Hail	0.75 in.	0	0	0K	0K	EPISODE NARRATIVE: Scattered thunderstorms developed across central Illinois during the afternoon hours of the 22nd. Several of the storms produced large hail.
184 Petersburg	7/21/2008	19:45 PM	Hail	1.00 in.	0	0	0K	0K	EPISODE NARRATIVE: Thunderstorms developed in a highly unstable environment ahead of an approaching cold front. Several discrete cells initially formed across the area, producing numerous reports of large hail. Eventually the cells merged into a bow structure, creating an enhanced damaging wind threat. A few discrete cells maintained themselves ahead of the bow, with one of the cells producing a tornado in Edgar County.
190 Petersburg	5/7/2009	16:05 PM	Hail	0.88 in.	0	0	0K	0K	EPISODE NARRATIVE: A slow-moving cold front triggered thunderstorms across western Illinois during the late afternoon of May 7th. The storms spread southeastward across south-central Illinois during the evening hours, producing numerous reports of large hail and damaging winds mainly along and south of a Petersburg...to Lincoln...to Effingham line.
193 Petersburg	5/7/2009	16:11 PM	Hail	0.88 in.	0	0	0K	0K	EPISODE NARRATIVE: A slow-moving cold front triggered thunderstorms across western Illinois during the late afternoon of May 7th. The storms spread southeastward across south-central Illinois during the evening hours, producing numerous reports of large hail and damaging winds mainly along and south of a Petersburg...to Lincoln...to Effingham line.
194 Petersburg	5/15/2009	16:12 PM	Hail	0.75 in.	0	0	0K	0K	EPISODE NARRATIVE: A warm front lifted northward into the region during the early morning hours of May 15th, triggering a large complex of thunderstorms across Iowa. These storms tracked eastward into north-central Illinois producing very heavy rain west of the Illinois River during the morning. Additional strong to severe thunderstorms developed further south along the warm front in the afternoon. These storms produced numerous reports of large hail, heavy rainfall, and flash flooding - including a fatality in a vechicle due to high water late in the evening. This was the second heavy rain episode within three days in central Illinois. There were also isolated reports of wind damage in central Illinois.

195 Greenview	5/15/2009	16:20 PM	Hail	1.25 in.	0	0	0K	0K	EPISODE NARRATIVE: A warm front lifted northward into the region during the early morning hours of May 15th, triggering a large complex of thunderstorms across Iowa. These storms tracked eastward into north-central Illinois producing very heavy rain west of the Illinois River during the morning. Additional strong to severe thunderstorms developed further south along the warm front in the afternoon. These storms produced numerous reports of large hail, heavy rainfall, and flash flooding - including a fatality in a vechicle due to high water late in the evening. This was the second heavy rain episode within three days in central Illinois. There were also isolated reports of wind damage in central Illinois.
196 Athens	5/15/2009	16:28 PM	Hail	1.75 in.	0	0	0K	0K	EPISODE NARRATIVE: A warm front lifted northward into the region during the early morning hours of May 15th, triggering a large complex of thunderstorms across Iowa. These storms tracked eastward into north-central Illinois producing very heavy rain west of the Illinois River during the morning. Additional strong to severe thunderstorms developed further south along the warm front in the afternoon. These storms produced numerous reports of large hail, heavy rainfall, and flash flooding - including a fatality in a vechicle due to high water late in the evening. This was the second heavy rain episode within three days in central Illinois. There were also isolated reports of wind damage in central Illinois.
197 Athens	5/15/2009	18:00 PM	Hail	1.00 in.	0	0	0K	0K	EPISODE NARRATIVE: A warm front lifted northward into the region during the early morning hours of May 15th, triggering a large complex of thunderstorms across Iowa. These storms tracked eastward into north-central Illinois producing very heavy rain west of the Illinois River during the morning. Additional strong to severe thunderstorms developed further south along the warm front in the afternoon. These storms produced numerous reports of large hail, heavy rainfall, and flash flooding - including a fatality in a vechicle due to high water late in the evening. This was the second heavy rain episode within three days in central Illinois. There were also isolated reports of wind damage in central Illinois.
34 Central Il	4/12/1994	1200	Flooding	N/A	0	0	50.0M	0	Flooding occurred along the Vermilion, Embarras, Sangamon, and Illinois rivers and their tributaries due to the very heavy rain which fell on April 11th and 12th. Thousands of homes had some kind of flood damage. Danville's water treatment plant was flooded causing $10 million in damage.
40 MENARD	5/16/1995	1800	Flash Flood	N/A	0	0	0	0	
41 MENARD	6/1/1995	0	Flood	N/A	0	0	0	0	
49 Countywide	5/8/1996	10:00 AM	Flash Flood	N/A	0	0	1.0M	0	Slow moving thunderstorms dumped between 4 and 9 inches of rain over Menard county. All major roads around Petersburg were closed for a few hours (Rt. 97, Rt. 123, and Rt. 29), so the town was isolated for a while. Some roads in the county were washed out and several homes in Athens sustained flood damage (one had a basement wall collapse). No injuries were reported. Road and bridge damage was estimated around $1 million. No private property damage estimate was available.

108 Countywide	4/27/2002	11:00 AM	Flash Flood	N/A	0	0	0	0	Numerous rural roads had water over them.
111 ILZ029>031 - 036>037 - 040>041 - 047>051 - 067>068 - 073	5/12/2002	8:30 PM	Flood	N/A	1	0	0	0	After several rounds of precipitation over Central Illinois during the first couple weeks of May, area rivers rose above flood stage at most locations. The following rivers were in flood during May: Spoon River, Illinois River, Mackinaw River, Sangamon River, Embarras River and the Little Wabash. The death of the 8 year old boy in Mason county occurred when he was playing in a boat that was tied to the shore in a flooded part of the Illinois River. The rope got loose and the boat started to drift away. He panicked and jumped into the water and drowned. As far as property damage is concerned, not too many homes were affected despite record or near record crests on many of the rivers in Central Illinois. Since the 1993 floods, many levies were built or existing ones were extended to prevent widespread flooding. The Mechanicsburg (Sangamon Co.) water treatment plant was inundated on the 13th by the Sangamon River. Also, several homes in the Riverton and Rochester areas were flooded due to the Sangamon River. In Cass County, the Bell Levy near Chandlerville was breached on the 15th. This caused Illinois Route 78 to be closed and seven homes were affected by the water. In southeastern Illinois, the Embarras River crested at a record 24.27 feet on May 16th in Lawrenceville. Several homes in town near the river were flooded. In southwestern Crawford County, a levy on the Embarras River near Landes was breached on the evening of the 14th. No structures were threatened, but several roads and farm fields in the area were flooded. M8IW
132 Countywide	8/25/2004	4:30 PM	Flash Flood	N/A	0	0	0	0	Very heavy rain fell countywide. Illinois Route 97 was flooded south of Petersburg.
175 Atterberry	6/3/2008	20:00 PM	Flash Flood	N/A	0	0	0K	0K	EVENT NARRATIVE: Eight to ten inches of flowing water was over Route 97 north of Petersburg. EPISODE NARRATIVE: Strong to severe thunderstorms developed across central Illinois during the evening of June 3rd. The worst of the storms were centered along the I-72 corridor from near Winchester northeastward to Champaign-Urbana, where numerous reports of hail and gusty winds were received. These storms also produced very heavy rainfall in some locations and produced flooding. In addition, a tornado touched down in Scott County near Alsey.
176 Petersburg	6/3/2008	20:00 PM	Flash Flood	N/A	0	0	0K	0K	EVENT NARRATIVE: Water was flowing across numerous county roads between Petersburg and New Salem State Park. EPISODE NARRATIVE: Strong to severe thunderstorms developed across central Illinois during the evening of June 3rd. The worst of the storms were centered along the I-72 corridor from near Winchester northeastward to Champaign-Urbana, where numerous reports of hail and gusty winds were received. These storms also produced very heavy rainfall in some locations and produced flooding. In addition, a tornado touched down in Scott County near Alsey.

178 Athens	7/12/2008	1:15 AM	Flash Flood	N/A	0	0	65K	0K	EVENT NARRATIVE: High flowing water washed out a bridge and road on the south side of Athens. Parts of IL Route 29 were flooded between IL Route 123 and the town of Athens. EPISODE NARRATIVE: Slow moving thunderstorms continued to back build and produce very heavy rain and flash flooding in a small area of west central Illinois during the early morning hours. The storms developed on an old outflow boundary with the aid of an upper level disturbance. The thunderstorms also produced lightning damage in DeWitt County.
179 Lincns New Salem St	7/12/2008	1:15 AM	Flash Flood	N/A	0	0	0K	0K	EVENT NARRATIVE: Gudgel Bridge Road at Price Road was closed due to mudslides blocking the road 2 miles southwest of Athens. EPISODE NARRATIVE: Slow moving thunderstorms continued to back build and produce very heavy rain and flash flooding in a small area of west central Illinois during the early morning hours. The storms developed on an old outflow boundary with the aid of an upper level disturbance. The thunderstorms also produced lightning damage in DeWitt County.
180 Petersburg	7/12/2008	1:15 AM	Flash Flood	N/A	0	0	0K	0K	EVENT NARRATIVE: Several vehicles were flooded on IL Route 97, one mile south of Petersburg. EPISODE NARRATIVE: Slow moving thunderstorms continued to back build and produce very heavy rain and flash flooding in a small area of west central Illinois during the early morning hours. The storms developed on an old outflow boundary with the aid of an upper level disturbance. The thunderstorms also produced lightning damage in DeWitt County.
181 Athens	7/12/2008	2:50 AM	Flash Flood	N/A	0	2	40K	0K	EVENT NARRATIVE: Two 8-inch diameter culverts were washed out on Harvest Road southwest of Athens. A car plunged into the void, resulting in two minor injuries. EPISODE NARRATIVE: Slow moving thunderstorms continued to back build and produce very heavy rain and flash flooding in a small area of west central Illinois during the early morning hours. The storms developed on an old outflow boundary with the aid of an upper level disturbance. The thunderstorms also produced lightning damage in DeWitt County.
182 Lincns New Salem St	7/12/2008	2:50 AM	Flash Flood	N/A	0	0	0K	0K	EVENT NARRATIVE: IL Route 97 was closed at New Salem due to water flowing across the road. EPISODE NARRATIVE: Slow moving thunderstorms continued to back build and produce very heavy rain and flash flooding in a small area of west central Illinois during the early morning hours. The storms developed on an old outflow boundary with the aid of an upper level disturbance. The thunderstorms also produced lightning damage in DeWitt County.
183 Petersburg	7/12/2008	2:50 AM	Flash Flood	N/A	0	0	20K	0K	EVENT NARRATIVE: A culvert was washed out on Foggy Bottom Avenue 7 miles south of Petersburg. EPISODE NARRATIVE: Slow moving thunderstorms continued to back build and produce very heavy rain and flash flooding in a small area of west central Illinois during the early morning hours. The storms developed on an old outflow boundary with the aid of an upper level disturbance. The thunderstorms also produced lightning damage in DeWitt County.

185 Lincns New Salem St	9/11/2008	14:00 PM	Flash Flood	N/A	0	0	0K	0K	EVENT NARRATIVE: Route 97 near New Salem State Park in Petersburg was closed due to high water. EPISODE NARRATIVE: A stationary frontal boundary draped across central Illinois served as the focal point for showers and thunderstorms during the afternoon of 09/11/2008. Areas along and west of the I-55 corridor recorded between 2 and 4 inches of rain, as storms repeatedly rolled over the same locations. As a result, localized flooding occurred from near Jacksonville northeastward toward Bloomington.
43 Central Illinois	12/8/1995	700	Winter Storm	N/A	1	0	0	0	A winter storm brought one to five inches of snow to Central Illinois during the day and evening of the 8th. A sharp cold front moved through during the evening of the 8th dropping temperatures as much as 25 degrees in three hours. Strong winds developed behind the front at 20 to 30 mph overnight and during the day on the 9th, causing considerable blowing and drifting of the snow, especially in open areas. The brisk winds and temperatures near zero created wind chills as low as 45 degrees below zero. One woman was killed in a traffic accident after sliding on an ice-covered road into on-coming traffic. F20VE
44 Central Illinois	12/18/1995	1900	Winter Storm	N/A	1	0	0	0	A winter storm brought heavy rains the evening of the 18th, which changed to freezing rain overnight before changing to all snow by 0700 on the 19th. Snowfall ranged from one inch in Mason County to six inches in Edgar County. Numerous accidents were reported, though only one fatality occurred when a five-month-old boy was killed when his mother lost control of the vehicle and spun into the path of an on-coming tractor-semitrailer. Numerous power lines were knocked down throughout Central Illinois, due to the freezing rain and strong winds of 20 to 30 mph. The strong winds also caused considerable blowing and drifting of snow closing some roads in Central Illinois until the winds subsided in the evening on the 19th. M01VE
45 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	1/4/1996	3:00 AM	Winter Storm	N/A	0	0	0	0	Following on the heels of the January 2nd/3rd storm, another winter storm moved through Central Illinois on January 4th. Snowfall ranged from 2 to 7 inches. Numerous minor accidents were reported across the area, though no major injuries were reported.
46 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	1/18/1996	10:00 AM	Winter Storm	N/A	0	2	0	0	A major winter storm moved through Central Illinois January 18th and 19th. Severe thunderstorms moved through the area during the late morning and early afternoon hours. Afterward, temperatures began to drop quickly. Most locations recorded a 60 degree drop over a 12 hour period. The rain changed to ice than snow causing numerous power outages and minor accidents. Two people were injured when the driver of the RV lost control of the vehicle when a strong gust of wind moved through the Farmer City area in DeWitt county. Gusty winds of 25 to 35 mph created winds chills near 40 below zero across most of Central Illinois.
54 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	1/8/1997	9:00 PM	Heavy Snow	N/A	0	6	0	0	A winter storm developed over the southern Plains and tracked to the northeast across southern Illinois. The storm dumped between 3 and 11 inches of snow over central Illinois. The heaviest snow fell in a corridor just north of I-70. Charleston in Coles County reported the most snow with 11 inches. Numerous accidents were reported throughout central Illinois. However, only 6 minor injuries were reported.

55 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	1/15/1997	3:00 AM	Winter Storm	N/A	1	7	0	0	A winter storm developed over the central Rockies and moved east into the Midwest. The storm brought between 4 and 6 inches of snow to a large part of central Illinois north of I-70. South of I-70 a mixture of freezing rain, sleet, and snow occurred with snow totals of 1 to 3 inches. After the snow stopped, the winds picked up to between 20 and 30 mph with higher gusts, causing near whiteout conditions. Also, temperatures fell below zero across the entire area, so with the strong winds and cold temperatures, wind chill readings dipped well below minus 40 degrees in many locations. Numerous accidents were reported though only 6 minor injuries and one person with serious injuries was reported. A 78 year old man died of exposure after apparently trying to walk a short distance to his brother's house and his body was not discovered for over 24 hours. M78OU
56 ILZ027>031 - 036>038 - 040>043 - 047>053	1/24/1997	7:00 AM	Winter Storm	N/A	0	0	0	0	A winter storm developed over the central Rockies and moved into southern Illinois on the 24th. Central Illinois received a mix of rain, freezing rain, sleet, and snow with the system which caused numerous accidents though no injuries were reported. Snow amounts were on the light side, up to 2 inches. However, some scattered areas in west central Illinois reported up to half an inch of ice accumulation.
57 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	1/26/1997	5:00 AM	Winter Storm	N/A	0	9	0	0	A winter storm developed over the southern Plains and moved east, to the south of Illinois. One area of snow moved through central Illinois on the 26th with snow amounts ranging from 1 to 4 inches. Then the snow let up around 4 pm on the 26th. A mixed bag of precipitation began to fall over the southern areas of central Illinois around 4 am on the 27th and spread north into the rest of central Illinois. By the time the precipitation ended in the evening of the 27th, another 1 to 5 inches of snow had fallen. Numerous accidents were reported, especially in the morning hours on the 27th. Nine minor injuries were reported.
68 ILZ027>031 - 036>038 - 040>043 - 047>051	12/9/1997	3:00 PM	Heavy Snow	N/A	1	0	0	0	A strong low pressure system moving northeast through Southern Illinois and into Central Indiana spread a band of heavy snow in about a 50 mile wide swath centered along the Illinois River. Most locations reported about 5 inches of snowfall with some locally heavier amounts around 6 inches. Numerous traffic accidents were reported but no serious injuries resulted. One exception resulted in a death in Peoria County. A tow truck driver was killed after a car skidded off a roadway and into a stranded car, pinning the victim. M51VE
69 ILZ027 - 036 - 040>041 - 047>052 - 061 - 066 - 071	12/30/1997	8:00 AM	Heavy Snow	N/A	3	0	0	0	About a 70 mile wide band of heavy snow, southwest of a Galesburg to Springfield to Effingham line, occurred. Snow amounts ranged from 3 to 6 inches with the heaviest occurring in a line from Rushville to south of Springfield. Numerous traffic accidents were reported resulting from slick roadways. 3 deaths were attributed to the slippery roads as they lost control of their vehicles. Otherwise no other serious injuries were reported. F57VE, M5VE, M68VE

70 ILZ027>031 - 036>037 - 040>041 - 047>050	1/8/1998	5:00 AM	Heavy Snow	N/A	0	0	0	0	Rain across Central Illinois quickly changed over to snow northwest of a line from Springfield to Bloomington during the early morning hours. Heavy snow amounts occurred across these areas before ending by early evening. Snowfall amounts of greater than 3 inches occurred in these areas. the heaviest snow occurred along and northwest of the Illinois River with total snowfall amounts of 4 to 8 inches. Numerous traffic accidents were noted but no serious injuries were reported.
71 ILZ027>030 - 036>038 - 040>043 - 047>053	1/14/1998	6:00 AM	Winter Storm	N/A	0	0	0	0	A winter Storm across much of Central Illinois produced widespread Freezing Rain, Sleet and Snow mainly affecting areas northwest of a Taylorville to Champaign line. The precipitation spread from west to east across the area during the morning hours. This resulted in several traffic accidents across the area, but no serious injuries were reported.
72 ILZ027>031 - 036>038 - 040>057	3/8/1998	10:00 PM	Winter Storm	N/A	2	0	0	0	A storm over the Southern Plains moved northeast bringing rain to the area which switched over to snow in the evening on March 8th. The snowfall persisted overnight with a mixture of freezing rain and snow in our southeastern counties. By the time the snow tapered off, snowfall amounts ranged from 2 inches in Coles county to over 6 inches in Knox, Peoria, and Fulton counties. Numerous accidents were reported with dozens of minor injuries. Two men died in separate accidents in Peoria county as they lost control of their vehicles due to the trecherous road conditions. Even after the snowfall subsided, gusty winds to 50 mph created near white-out conditions in most locations, before subsiding during the evening hours on the 9th. M41VE, M52VE

86 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066	1/1/1999	12:00 PM	Heavy Snow	N/A	1	1	0	0	F47PH A major winter storm paralyzed much of the region during the first few days of 1999. Snow began falling across portions of Central Illinois before noon on New Year's Day and continued to fall, moderate to heavy at times for most of the following 24-hour period. Locations near and south of Charleston/Mattoon saw periods of mixed precipitation, including freezing rain, while farther north snow was predominate. After the snowfall and precipitation diminished, winds increased from the northwest and temperatures dropped, causing dangerous wind chills and treacherous driving conditions with extensive blowing and drifting snow through the third day of the year. Total snow accumulations topped 6 inches mainly along and north of Interstate 70. Lesser amounts fell to the south, where more freezing precipitation was reported. The heaviest snow band in Central Illinois was found west and north of a line from Quincy to Virginia (Cass County) to Peoria to Bloomington to Champaign where reports of 14 or more inches of snow were common. The weight of the heavy snow and ice caused many roofs and porches to collapse, resulting in one death and an injury. An overhang attached to a garage at a Dalton City (Moultrie County) residence collapsed, killing a 47-year old woman and injuring her husband. In Pekin (Tazewell County), a storage building roof collapsed. A garage roof collapsed onto a station wagon in Winchester (Scott County). In Sullivan (Moultrie County), another roof collapsed. In Chesterville (Moultrie County), the roof caved in on the Bourbon Township Shed. Structural damage was sustained at the Farm and Fleet just west of Bloomington on Route 9 (McLean County). Part of the roof collapsed on the TCI building in Decatur (Macon County). The roof caved in and fell onto a service truck and two cars at Walker's Tire and Muffler Shop in Farmer City (Dewitt County). A private airplane was totalled when the roof of one of the main hangers at Kermit Patchett Airport in Marshall (Clark County) collapsed. Several homes in town also reported collapsed porches. In Lawrence County, more than $1000 in damage was sustained to vehicles in three separate accidents, with only minor injuries reported. Elsewhere, no damage estimates were available. In addition, many locations sustained temporary or extended power outages during the storm.

88 ILZ027>031 - 036>038 - 040>045 - 047>048 - 050>051 - 053	3/8/1999	12:00 PM	Heavy Snow	N/A	0	5	0	0	A winter storm developed in the Southern Rockies and moved northeast into Illinois. The heaviest snow fell mainly north of interstate I-72/I-74 from Jacksonville to Danville. Wet snowfall amounts ranged from 6-11 inches in a little over 12 hours, though the snow fell for 24 hours. Light freezing rain was also reported in some locations with the snow. In Galesburg (Knox County), 9 inches of snow was reported and in Bradford (Stark County) 8 inches of snow fell. Some other reports includes 8 inches in Avon (Fulton County), 7.5 inches in Chillicothe (Peoria County), just north of Lacon (Marshall County) 7.5 inches fell, 7.3 inches in Congerville (Woodford County), 9 inches in South Pekin (Tazewell County), 7.5 inches just west of Bloomington (McLean County), 6 inches in Rantoul (Champaign County), 6.5 inches in Clinton (DeWitt County), 7.5 inches in San Jose (Logan County), 11 inches in Havana (Mason County), 9.3 inches in Virginia (Cass County), and 6.3 inches in Springfield (Sangamon County). Snowfall amounts averaged between 2 to 4 inches between I-72 and I-70 with less than 1 inch of snow southeast of I-70 where rain generally fell. Some light freezing rain was also reported south of I-72/I-74 but ice accumulations were less than a quarter inch. Dozens of accidents occurred throughout the area during the event with numerous minor injuries.
117 ILZ042>053	2/14/2003	11:00 PM	Winter Storm	N/A	0	0	0	0	The most severe winter storm of the season struck 22 counties of central IL from Friday evening on February 14 through early Sunday morning on February 16. Between 4 and 8 inches of snow accumulated along and north of Interstate 72 from Winchester to Springfield to Decatur to Champaign and Danville. There were local reports of 8 to 10 inches of snow across parts of Knox, Fulton, and Woodford counties. Around a quarter inch of ice also accumulated along the Interstate 72 corridor. In addition, winds of 30 to 50 mph especially Saturday evening caused major blowing and drifting snow across this area, with drifts as high as 3 to 5 feet.
158 ILZ038 - 048	11/30/2006	8:30 AM	Winter Storm	N/A	0	0	0K	0K	EVENT NARRATIVE: Designated state and federal disaster area. 3 to 5 inches of snow fell on top of significant icing. EPISODE NARRATIVE: A major winter storm moved through the Midwest from late on November 29th into December 1st. Freezing rain moved into west central and central Illinois in the late hours of November 29th. The freezing rain mixed with and changed to heavy sleet, which persisted for 6 to 8 hours during the evening hours of November 30th. Ice accumulations ranged from 0.25 to 1.50 inches across much of central Illinois, with heavy sleet accumulations ranging from 0.50 to 2.20 inches. The precipitation changed over to snow across west central Illinois by the evening hours on November 30th and during the overnight hours across central Illinois. Snow accumulations along and west of the Illinois River valley ranged from 8 to 15 inches. Further east, 3 to 8 inches of snow was reported on top of the significant ice and sleet accumulations. Considerable tree and power line damage was caused by the ice and heavy snow, especially across central Illinois. The power was not restored across some locales for several days. The snow and ice covered roads also resulted in numerous vehicular accidents. 22 counties in the Central Illinois National Weather Service Forecast Area were designated a state disaster area and 18 counties were designated a federal disaster area.

159 ILZ027>031 - 036>038 - 040>045 - 047>054 - 061	12/1/2006	12:00 AM	Winter Storm	N/A	0	0	0K	0K	EVENT NARRATIVE: Declared state disaster area. Snow accumulations of 6 to 10 inches fell on top a significant accumulation of ice. EPISODE NARRATIVE: A major winter storm moved through the Midwest from November 29th into December 1st. Freezing rain moved into west central and central Illinois during the late hours of November 29th. The freezing rain mixed with and changed to heavy sleet, which persisted for 6 to 8 hours during the evening hours of November 30th. Ice accumulations ranged from 0.25 to 0.70 inches across much of central Illinois, with heavy sleet accumulations ranging from 0.50 to 2.20 inches. The precipitation changed over to snow across west central Illinois by the evening hours on November 30th and during the overnight hours across central Illinois. Snow accumulations along and west of the Illinois River valley ranged from 8 to 15 inches. Further east, 3 to 8 inches of snow was reported on top of the significant ice and sleet accumulations. The precipitation tapered off on December 1st. Considerable tree and power line damage was caused by the ice and heavy snow, especially across central Illinois. The power was not restored across some locales for several days. The snow and ice covered roads also resulted in numerous vehicular accidents. 22 counties in the Central Illinois National Weather Service Forecast Area were designated a state disaster area and 18 counties were designated a federal disaster area.
160 ILZ048>050	1/12/2007	17:00 PM	Ice Storm	N/A	0	0	0K	0K	EPISODE NARRATIVE: A winter storm spread freezing rain into west central Illinois during the afternoon hours of February 12th. The freezing rain tapered off during the overnight and morning hours of February 13th. Ice accumulations of one quarter to one half inch were common along and west of a Knox to Tazewell to Christian county line. The ice caused modest tree limb and power line damage and numerous vehicular accidents.
161 ILZ040 - 044 - 047>057 - 061	2/12/2007	22:00 PM	Blizzard	N/A	0	0	0K	0K	
162 ILZ040 - 044 - 047>057 - 061	2/12/2007	22:00 PM	Winter Storm	N/A	0	0	0K	0K	EVENT NARRATIVE: Snowfall totals averaged 7 to 9 inches. Significant blowing and drifting snow also occurred. EPISODE NARRATIVE: One of the most significant snowstorms in nearly a decade struck central Illinois on February 13, producing blizzard conditions in many locations. Snow began falling during the late evening hours of February 12 and did not come to an end until 24 hours later. The extended period of snow produced impressive accumulations across parts of central Illinois, particularly along the I-72 corridor where between 10 and 15 inches was common. Further north and south, snow totals gradually tapered downward. In addition to the heavy snowfall, strong northerly winds gusting from 35 to 45 mph created blizzard conditions. Visibilities were reduced to less than a quarter of a mile at times in falling and/or blowing snow. Many locations reported snow drifts ranging from 3 to 6 feet, prompting the closure of several area roadways.
163 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071	4/5/2007	12:00 AM	Frost/freeze	N/A	0	0	0K	0K	

165 ILZ047>051	12/8/2007	12:00 PM	Ice Storm	N/A	0	0	50K	0K	EVENT NARRATIVE: Snowfall totals averaged 7 to 9 inches. Significant blowing and drifting snow also occurred. EPISODE NARRATIVE: One of the most significant snowstorms in nearly a decade struck central Illinois on February 13, producing blizzard conditions in many locations. Snow began falling during the late evening hours of February 12 and did not come to an end until 24 hours later. The extended period of snow produced impressive accumulations across parts of central Illinois, particularly along the I-72 corridor where between 10 and 15 inches was common. Further north and south, snow totals gradually tapered downward. In addition to the heavy snowfall, strong northerly winds gusting from 35 to 45 mph created blizzard conditions. Visibilities were reduced to less than a quarter of a mile at times in falling and/or blowing snow. Many locations reported snow drifts ranging from 3 to 6 feet, prompting the closure of several area roadways.
168 ILZ029 - 036 - 041>042 - 044>048 - 053>055 - 061	1/31/2008	14:00 PM	Heavy Snow	N/A	0	0	0K	0K	EPISODE NARRATIVE: A major winter storm lifted from the southern plains into the Ohio Valley from January 31st into February 1st. This storm produced heavy snow, at least 6 inches, across much of central Illinois. The accumulating snow began during the afternoon hours of the 31st and ended during the morning hours of the 1st. The heaviest band of snow extended from Springfield, to Decatur, to Rantoul, where 9 to 12 inches of snow fell. The maximum snowfall amount was 12.9 inches in Springfield.
169 ILZ029>031 - 036>038 - 041>055 - 061	2/1/2008	12:00 AM	Heavy Snow	N/A	0	0	0K	0K	EPISODE NARRATIVE: A major winter storm lifted from the southern plains into the Ohio Valley from January 31st into February 1st. This storm produced heavy snow, at least 6 inches, across much of central Illinois. The accumulating snow began during the afternoon hours of the 31st and ended during the morning hours of the 1st. The heaviest band of snow extended from Springfield, to Decatur, to Rantoul, where 9 to 12 inches of snow fell. The maximum snowfall amount was 12.9 inches in Springfield.
186 ILZ036 - 041 - 048	12/18/2008	19:00 PM	Ice Storm	N/A	0	0	100K	0K	EVENT NARRATIVE: Weather observers across Fulton County reported between one half and three quarters of an inch of ice, including one half inch amounts in both Canton and Avon. In addition, widespread power outages and numerous traffic accidents were reported across the county. EPISODE NARRATIVE: A powerful storm system produced between one quarter and three quarters of an inch of ice across parts of central Illinois on December 18th. Areas along and north of I-72 were most severely impacted, with widespread tree damage and power outages reported. Increasing west to northwest winds in the wake of the departing storm system resulted in additional downed tree branches and power outages into December 20th. At the height of the storm, over 30,000 customers were reported to be without power across central Illinois. Preliminary damage estimates are approximately 2 million dollars.
200 ILZ030 - 037 - 041 - 047>048 - 050	1/6/2010	19:30 PM	Winter Storm	N/A	0	0	0K	0K	EVENT NARRATIVE: Numerous weather observers across Marshall County measured around 6 inches of snow. EPISODE NARRATIVE: An area of low pressure tracking from the Plains northeastward into the Great Lakes brought a period of moderate to heavy snow to parts of central Illinois from the evening of January 6th through the morning of January 7th. Snowfall was greatest along and north of I-72...where 5 to 7 inch totals were common. Once the snow subsided, gusty northwesterly winds created considerable blowing and drifting across the area through the night of January 7th.

201 ILZ030 - 037 - 041 - 047>048 - 050	1/6/2010	19:30 PM	Winter Weather	N/A	0	0	0K	0K	EVENT NARRATIVE: Numerous weather observers across Cass County reported 4 to 6 inches of snow. EPISODE NARRATIVE: An area of low pressure tracking from the Plains northeastward into the Great Lakes brought a period of moderate to heavy snow to parts of central Illinois from the evening of January 6th through the morning of January 7th. Snowfall was greatest along and north of I-72...where 5 to 7 inch totals were common. Once the snow subsided, gusty northwesterly winds created considerable blowing and drifting across the area through the night of January 7th.
47 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	2/2/1996	12:00 AM	Extreme Cold	N/A	2	0	0	0	Bitterly cold weather took hold of Central Illinois on the 2nd, 3rd, and 4th of this month. New record low temperatures were made with a low of minus 19 in both Peoria and Springfield on February 3rd. Also, new record low high temperatures were made when the temperatures at Peoria and Springfield never went above zero on the 2nd and 3rd. Many people experienced problems with cars and frozen pipes. However, two deaths were reported due to the extreme cold. A 78 year old man in Springfield froze to death within a few feet of his own front door. He reportedly could not find his house keys and fell. His wife could not help him and they were not found for several hours. She was treated for exposure and released. In Peoria, a 79-year-old woman froze to death on her front porch. Apparently she mistakenly thought she was locked out of her home. F79PH, M78PH
64 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	7/26/1997	9:00 AM	Excessive Heat	N/A	2	0	0	0	A brief heat wave hit Central Illinois persisting for a little less than 48 hours from July 26the to July 27th. Temperatures ranged from 95 to 100 degrees both days with heat index values ranging from 105 to 115 degrees. One man died while working in farm fields near Danville (Vermilion County) and an elderly woman died in her home in Bloomington (McLean County). There were numerous reports of heat related injuries in most area hospitals. Also, there were numerous reports of roads buckling due to the high temperatures. F70PH, M64OU
78 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	6/26/1998	3:00 AM	Excessive Heat	N/A	1	0	0	0	A hot and humid airmass built in across Central Illinois late in June. High temperatures on June 26th and 27th climbed into the middle and upper 90s. This combined with the high humidity values produced heat indicies of 105 to 110 degrees at times. Several heat related illnesses were reported in area hospitals due to the heat. One death was reported in Peoria and was confirmed to be heat related as a woman died in her home on June 27th. Also, several highways in the area had sections of roadway buckle due to the excessive heat. F82PH
87 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	1/5/1999	5:00 AM	Extreme Cold	N/A	0	0	0	0	A clear sky, light winds and thick snowcover set the stage for record cold morning temperatures across the region. A new state record low was set at Congerville, where the mercury plunged to 36 degrees below zero. Other bitterly cold record readings came from: Champaign and Lincoln both with 25 degrees below zero, Springfield with 21 below and Peoria with 19 degrees below zero.

90 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	7/20/1999	10:00 AM	Excessive Heat	N/A	4	0	0	0	The excessive heat wave began on the 20th of July and continued for most of the area through the 26th. Temperatures were in the lower to middle 90s with heat index values in the 105 to 110 degree range each day. Northern sections of the area did cool down some by the 25th as a front moved through the area...so the heat advisory was cancelled in those areas. During this time period four heat related deaths were reported in Central Illinois. In Atlanta (Logan County), two young boys (2 1/2 and 1 1/2 years old) wandered away on the afternoon of the 20th and were found about an hour later in their parents car. Both were reported dead shortly thereafter. In West Peoria (Peoria County), an elderly woman was found in her apartment on the 24th. All of the windows were closed and the air conditioner was broken. In Springfield (Sangamon County), a 62 year old woman was found in her home on the 25th. Again all of the windows were closed and there were no fans or air conditioning. M3VE, M2VE, F82PH, F62PH
91 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	7/28/1999	10:00 AM	Excessive Heat	N/A	1	0	0	0	The heat returned to Central Illinois after a two day break. Temperatures rose into the lower to middle 90s again with heat index values in the 105 to 110 degree range. One heat related death occurred during this time. A 50 year old woman in Danville (Vermilion County) died on the 30th. She was found in her apartment. By the 30th a cold front began to move through the area, so the heat advisory was cancelled for northern sections of the area, but the excessive heat persisted in the rest of Central Illinois through the 31st. F50PH
136 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	7/22/2005	12:00 PM	Excessive Heat	N/A	1	0	0	0	A period of excessive heat and humidity developed across all of central and southeast Illinois from July 22nd through the 25th. Daytime high temperatures ranged from the middle 90s to around 100 degrees daily, with overnight low temperatures only falling into the middle and upper 70s. The high humidity values pushed afternoon and early evening heat indices into the 105 to 115 degree range. The heat wave resulted in one direct fatality. An elderly woman was found dead in Springfield in her mobile home with malfunctioning air conditioning. F77MH
155 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	7/30/2006	11:00 AM	Heat	N/A	1	0	0	0	An extended period of heat and humidity occurred across central and southeast Illinois from July 30th to August 2nd. Afternoon high temperatures ranged from 94 to 100 degrees most afternoons, with afternoon heat indices ranging from 105 to 110. Overnight lows only fell into the mid 70s. A 39 year old male from Mapleton (Peoria County) suffered a heart attack and died in his mobile home. The death was attributed to the heat. However, the home was not air conditioned and he was taking a medication that prevented him from sweating. M39MH
156 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071>073	8/1/2006	12:00 AM	Heat	N/A	0	0	0	0	An extended period of heat and humidity occurred across central and southeast Illinois from July 30th to August 2nd. Afternoon high temperatures ranged from 94 to 100 degrees most afternoons, with afternoon heat indices ranging from 105 to 110. Overnight lows only fell into the mid 70s.

170 ILZ027>031 - 036>038 - 040>057 - 061>063 - 066>068 - 071	2/4/2008	2:00 AM	Dense Fog	N/A	0	0	0K	0K	EPISODE NARRATIVE: A period of rain and mild temperatures over melting snow pack cause an extended period of dense fog across much of central and southeast Illinois. Numerous school closures and vehicular accidents occurred as a result of the dense fog. One accident resulted in a fatality in Vermilion county.
187 ILZ027>031 - 036>038 - 040>048 - 053 - 055	1/15/2009	12:00 AM	Extreme Cold/wind Chill	N/A	1	0	0K	0K	EVENT NARRATIVE: A man was found dead outside near a pond at an apartment complex in Normal on the morning of January 15th. An autopsy report indicated he died due to exposure to the extreme cold. Low temperatures were around 20 below zero with wind chills of 35 below to 40 below zero. EPISODE NARRATIVE: Bitterly cold air poured into central Illinois in the wake of a departing storm system. Thanks to clear skies over a fresh snow cover, early morning temperatures on January 15th and 16th plunged well below zero in much of central and eastern Illinois. In addition, brisk northwesterly winds created wind-chill values in the 25 below to 40 below zero range. As a result of the extreme cold, a man in Bloomington-Normal lost his life due to hypothermia.

Menard County Picture Index

WINTER

File Name: Winter_1973_Petersburg
Event: Winter
Date: December 27, 1973
Description: Beautiful winter scenes such as this could be seen all over the countryside following the snow. This picture was taken near Oakland Cemetery. The entire central Illionis area was hit by a record-breaking snow storm on Tuesday, Wednesday and Thursday of last week that left a total of 15 inches of snow on the ground.
Source: Western Illinois University Historical Archives

File Name: Ice_Athens_1924
Event: Ice Storm
Date: Dec 18 and 19, 1924
Description: Here is another picture of that big sleet storm that hit Athens December 18 and 19 in 1924. Picture of West Jackson Street.
Source: Western Illinois University Historical Archives

File Name: Snow_Athens_1968_1
Event: Snow
Date: January 19, 1968
Description: The Snow was at such depth that all the schools in the area, including Athens, remained closed Monday. There is some controversy as to the number of inches of the white that covered the ground. Rumors from 11 inches to 15 inches on level ground.
Source: Western Illinois University Historical Archives

File Name: Snow_Athens_1968_2
Event:Snow
Date: January 19, 1968
Description: The Snow was at such depth that all the schools in the area, including Athens, remained closed Monday. There is some controversy as to the number of inches of the white that covered the ground. Rumors from 11 inches to 15 inches on level ground.
Source: Western Illinois University Historical Archives

File Name: Snow_Athens_1968_3
Event: Snow
Date: January 19, 1968
Description: The Snow was at such depth that all the schools in the area, including Athens, remained closed Monday. There is some controversy as to the number of inches of the white that covered the ground. Rumors from 11 inches to 15 inches on level ground.
Source: Western Illinois University Historical Archives

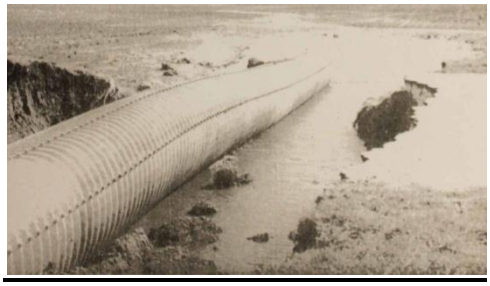
File Name: Snow_Athens_1977
Event: Snow
Date: December, 1977
Description: The second major snow storm within a week moved across Illinois on Thursday of last week, dumping several inches of additional snow on the ground. High winds created drifts several feet high in many places, and road crews were unable to keep most area roads open because of the drifting. This picture was taken Sunday afternoon on the Sandridge road north of Petersburg, and shows how high drifts were in some areas. Many county roads still remained drifted the first of this week.
Source: Athens Public Library

File Name: Ice_Petersburg_1978
Event: Ice Storm
Date: March 25, 1978
Description: This picture was taken Saturday morning, March 25 south of Petersburg and shows some of the damage that was done to trees by the ice storm. Branches were broken out of many trees by the weight of the ice, and in some areas entire trees fell or were uprooted.
Source: Athens Public Library

File Name: Snow_2003_Menard
Event: Snow rolls
Date: February 21, 2003
Description: "Menard County residents experienced a wide variety of weather conditions last week, and on Wednesday rolls of snow were dotted around throughout the county and beyond. This unusual phenomenon, known as show rollers, which had never before been reported in the area, occurs when strong winds got chunks of snow moving and they begin to roll and collect additional snow as they move."
Source: Athens Public Library

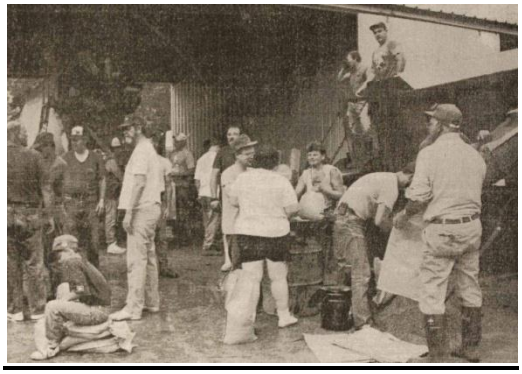
FLOOD

File Name: Flood_Petersburg_1943
Event: Flood
Date: May 20, 1943
Description: Houses on Sangamon Avenue in Petersburg were completely surrounded by water during the May, 1943 flood. This picture shows homes in the block between Fifth Street and the railroad tracks.
Source: Western Illinois University Historical Archives



File Name: Flood_FancyPrairie_1979
Event: Flood
Date: April, 19, 1979
Description: The picture shows a large culvert that was washed out on the blacktop road east of Fancy Prairie. The flood waters cut out other roadway on both sides of the culvert and then washed a large tube more than fifty feet out into a field.
Source: Athens Public Library

File Name: Flood_Sweetwater_1979
Event: Flood
Date: April, 19, 1979
Description: The picture shows a bridge near Sweetwater that was damaged when flood waters washed out part of the approaches on both sides, causing the roadway to drop. Temporary repairs were made later that day and light traffic was permitted across the bridge. Although major repairs with the necessary to the structure.
Source: Athens Public Library



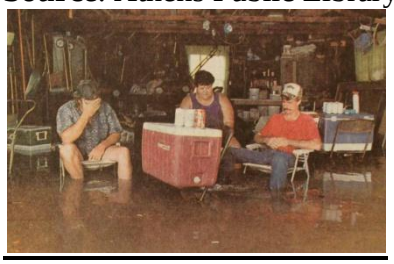
File Name: Flood_1993_Mendard_1
Event: Flood
Date: July, 30, 1993
Description: When the Sny Island levee broke Sunday morning sending millions of gallons of flood waters into nearby fields and communities, the repercussions were felt in Menard Count. Area residents have spent countless hours filling sandbags and collecting bales of stew to send to the levy area, and their efforts, as well as those put forth by thousands of other volunteers, were swept away with the water. This picture shows 25 volunteers who gather at Stroh-Anderson Ready Mix again on Saturday morning to fill sandbags. Stroh-Anderson donated the sand, and the bags were delivered in trucks provided by Gary Espenschied, Bruce Boeker and Petersburg Plumbing and Heating. The bags were taken directly to the levy only hours before it finally gave way.
Source: Athens Public Library

File Name: Flood_1993_Mendard
Event: Flood
Date: July, 30, 1993_2
Description: When the Sny Island levee broke Sunday morning sending millions of gallons of flood waters into nearby fields and communities, the repercussions were felt in Menard Count. Area residents have spent countless hours filling sandbags and collecting bales of stew to send to the levy area, and their efforts, as well as those put forth by thousands of other volunteers, were swept away with the water. This picture shows the loads of straw delivered to the levee on July 16.
Source: Athens Public Library

File Name: Flood_1993_Athens_1
Event: Flood
Date: July, 30, 1993
Description: "With the Illinois River backing up due to the Mississippi above flood stage for weeks, Mayor George Cerar of Athens, hearing a need for sandbags at Meredosia, talked to Contractor Jim Higginbotham of Athens and they came up with the idea if George could get the bags and the use of city equipment, then Jim would furnish the sand and truck to help deliver the bags."
Source: Athens Public Library

File Name: Flood_1993_Athens_2
Event: Flood
Date: July, 30, 1993
Description: "With the Illinois River backing up due to the Mississippi above flood stage for weeks, Mayor George Cerar of Athens, hearing a need for sandbags at Meredosia, talked to Contractor Jim Higginbotham of Athens and they came up with the idea if George could get the bags and the use of city equipment, then Jim would furnish the sand and truck to help deliver the bags."
Source: Athens Public Library

File Name: Flood_1993_Athens_3
Event: Flood
Date: July, 30, 1993
Description: "With the Illinois River backing up due to the Mississippi above flood stage for weeks, Mayor George Cerar of Athens, hearing a need for sandbags at Meredosia, talked to Contractor Jim Higginbotham of Athens and they came up with the idea if George could get the bags and the use of city equipment, then Jim would furnish the sand and truck to help deliver the bags."
Source: Athens Public Library



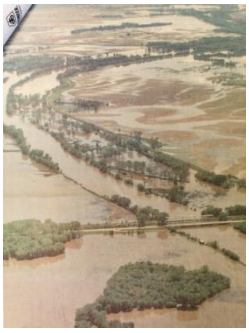
File Name: Flood_1993_Athens_4
Event: Flood
Date: July, 30, 1993
Description: "Tim Herter,left, with niece Becca Ewen and brother-in-law Jeff McKinnon, right, take a break from evacuating Ewen's grandparents' flooded home."
Source: Athens Public Library

File Name: Flood_2002_Petersburg
Event: Flood
Date: May 15, 2002
Description: "Illinois 123 flooded by the Sangamon River on the east side of Petersburg."
Source: Athens Public Library

File Name: Flood_2002_Petersburg_2
Event: Flood
Date: May 15, 2002
Description: "A car is forced to turn around at a point where the Sangamon River has flooded a road near Petersburg."
Source: Athens Public Library

File Name: Flood_1994_Athens_1
Event: Flood
Date: April 29, 1994
Description: "The River Valley View area southwest of Athens was heavily damaged during the recent flood when a levee droke and caused an estimated loss of $150,00 to $200,000. The 70-80 foot wide levee protects 275 acres of land that DiGiovanna farms along the Sangamon River, but that ground turned into a lake when two huge sections of the levee broke away during the height of the flood on April 14. One break was 600 feet long and the other 300 feet long."
Source: The Menard County Review from Athens Public Library

File Name: Flood_1994_Athens_2
Event: Flood
Date: April 29, 1994
Description: "The River Valley View area southwest of Athens was heavily damaged during the recent flood when a levee droke and caused an estimated loss of $150,00 to $200,000. The 70-80 foot wide levee protects 275 acres of land that DiGiovanna farms along the Sangamon River, but that ground turned into a lake when two huge sections of the levee broke away during the height of the flood on April 14. One break was 600 feet long and the other 300 feet long."
Source: The Menard County Review from Athens Public Library



File Name: Flood_Menard
Event: Flood
Date: April 29, 1994
Description: "The Sangamon River takes over thousands of acres near Illinois Route 97 and mason-Menard county line."
Source: Athens Public Library

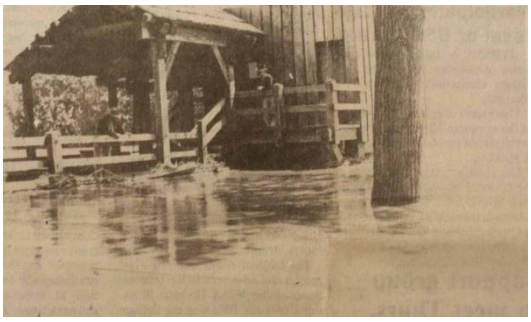
File Name: Flood_2002_Petersburg_3
Event: Flood
Date: May 16, 2002
Description: "John Lynch, center helps pile sandbags around Polly Ferguson's home in Petersburg in anticipation f more flooding from the Sangamon River."
Source: Athens Public Library

File Name: Flood_2002_Petersburg_4
Event: Flood
Date: May 16, 2002
Description: "Porta High School seniors pose for their class portrait on flooded Illinois 123 in Petersburg"
Source: Athens Public Library

File Name: Flood_Petersburg_1
Event: Flood
Date:
Description: "The Third Ward School building on Taylor Street was surrounded with water during the height of the flood. Water reached the highway on North Sixth Street, forcing people from their homes"
Source: Athens Public Library

File Name: Flood_Petersburg_2
Event: Flood
Date:
Description: "Train traffic in Petersburg when water covered the tracks. At the C&IM depot, work continued even through the six inches of water covered the flood."
Source: Athens Public Library

File Name: Flood_New_Salem_1
Event: Flood
Date:
Description: "The Mallergren Mine, across from the new Salem State park entrance, filling with water during the flood, despite efforts to stop the flow with sandbags. There were five explosions in the mine, and the air shaft exploded."
Source: Athens Public Library



File Name: Flood_New_Salem_2
Event: Flood
Date:
Description: "Water reached the floor of the grist mill at New Salem. Traffic was impossible in the area, as water covered the highway for a quarter of a mile, and it was over the safety fence along the road in some places."
Source: Athens Public Library

TORNADO

File Name: Tornado_1995_Menard_1
Event: Tornado
Date: May 18, 1995
Description: "The tornado that tore through Central and the southeastern portion of Menard County last Tuesday evening…The photo was shot by Janes Roberts last Tuesday shortly after the tornado hit and shows some of the stately old trees in the Central park that were damaged."
Source: The Menard County Review from Athens Public Library

File Name: Tornado_1995_Menard_2
Event: Tornado
Date: May 18, 1995
Description: "The tornado that tore through Centrall and the southeastern portion of Menard County last Tuesday evening…This photo was taken the following morning and shows a garage in Centrall that was completely destroyed by the twister."
Source: The Menard County Review from Athens Public Library

File Name: Tornado_1995_Menard_3
Event: Tornado
Date: May 10, 1995
Description: "A slow-moving tornado hangs over southeastern Menard County just before striking the Sangamon County town of Central."
Source: The Menard County Review from Athens Public Library

THUNDERSTORM/WIND/HAIL

File Name:Thunderstorm_May_Petersburg_1
Event: Thunderstorm
Date: May 15, 2009
Description: I was trying to get a picture of the cloud formation at night, and lightening just happened to strike right when I took the picture. I love storms!
Source: Kaleigh Brutlag (Petersburg) http://extras.sj-r.com/photo-galleries/reader/send-us-you-may-15-storm-photos/1432/

File Name:Thunderstorm_May_Athens_1
Event: Thunderstorm
Date: May 15, 2009
Description: Photo taken in Athens just as tornado sirens started going off.
Source: **Tiffany Bowles (Athens, IL)** http://extras.sj-r.com/photo-galleries/reader/send-us-you-may-15-storm-photos/1417/

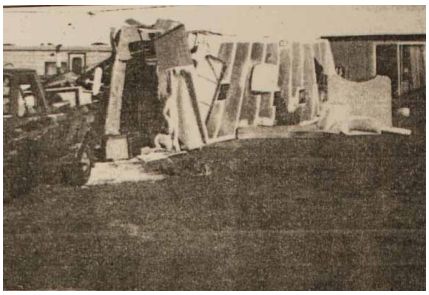
File Name:Thunderstorm_May_1
Event: Thunderstorm
Date: May 15, 2009
Description: North of Pleasant Plains on the Sangamon/Menard county line.
Source: **Kevin Van Houten (Pleasant Plains)** http://extras.sj-r.com/photo-galleries/reader/send-us-you-may-15-storm-photos/1405/

File Name:Thunderstorm_Athens_1975
Event: Thunderstorm
Date: May, 25, 1975
Description: A violent thundered storm with winds of 75 mph. rapidly swept through Athens and surrounding areas around 5 pm Monday evening, May 19 and dumped 1.5 inches of rain in less than 15 minutes as the picture shows a volume of the downpour spilling into the town branch on South Main Street afterwards.
Source: Athens Public Library

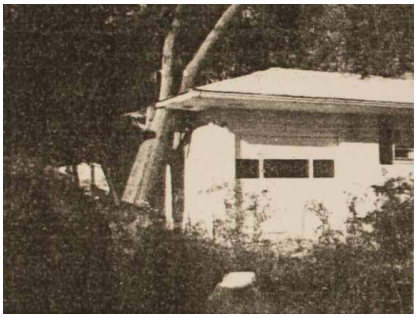
File Name:Thunderstorm_Athens_1988
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens – The Droughan family gathered around their kitchen table for dinner at 5:30 p.m. Monday, like they do every night when 60 mph winds suddenly sent a 5-foot-thick oak tree crashed through the roof and landing a few feet from the table." "Athens storm damage set at $100,000"
Source: Athens Public Library

File Name:Thunderstorm_Athens_1988_2
Event: Thunderstorm
Date: October 17, 1988

Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. The pictures show some of the damages, with the top two being the most severe."
Source: Athens Public Library



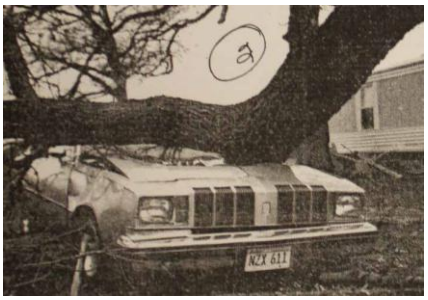
File Name:Thunderstorm_Athens_1988_3
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. The pictures show some of the damages, with the top two being the most severe."
Source: Athens Public Library



File Name:Thunderstorm_Athens_1988_4
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. The pictures show some of the damages, with the top two being the most severe."
Source: Athens Public Library

File Name:Thunderstorm_Athens_1988_5
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. The pictures show some of the damages, with the top two being the most severe."
Source: Athens Public Library

File Name:Thunderstorm_Athens_1988_6
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. "
Source: Athens Public Library

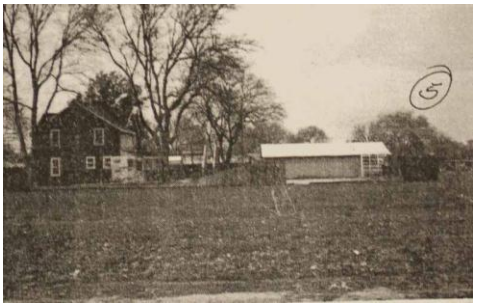


File Name:Thunderstorm_Athens_1988_7
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. "
Source: Athens Public Library

File Name:Thunderstorm_Athens_1988_8

Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. "
Source: Athens Public Library

File Name:Thunderstorm_Athens_1988_9
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. "
Source: Athens Public Library



File Name:Thunderstorm_Athens_1988_10
Event: Thunderstorm
Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. "
Source: Athens Public Library

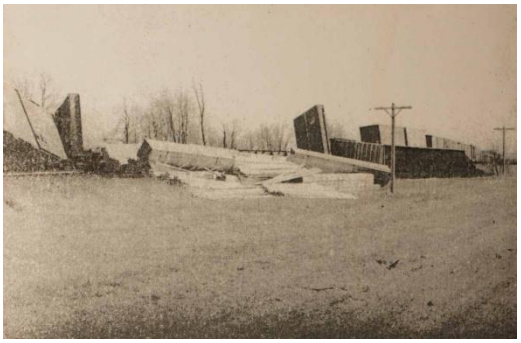
File Name:Thunderstorm_Athens_1988_11
Event: Thunderstorm

Date: October 17, 1988
Description: "Athens—Whether it was a tornado of a violent rain/wind/hail storm in excess of 60 mph that suddenly roared through Athens without warning at 5:30 p.m. Monday, October 17, the damages left behind by Mother Nature will total over the $100,00 mark. "
Source: Athens Public Library

File Name:IceStorm_1978
Date: 1978
Description: "The ice storm of 1978 "
Source: In a paper on 3/22/1998 Athens Public Library

File Name:IceStorm_1978_2
Date: 1978
Description: "The ice storm of 1978 "
Source: In a paper on 3/22/1998 Athens Public Library

OTHER



File Name:TrainDerail_MasonCity_1979_1
Event: Train Derailed
Date: April 19, 1979
Description: Another casualty of the heavy rain that fell in Menard County last week was a Chicago & Northwestern freight train that derailed near the Hubly Crossing early Thursday morning, April 12. Hubly crossing is located in the extreme northeastern corner of Menard County, about five miles southeast of Mason City. Shows a car of scrap iron, another overturned car that was carrying lumber and two other derailed cars where they came to rest following the derailment.
Source: Athens Public Library

File Name:TrainDerail_MasonCity_1979_2
Event: Train Derailed
Date: April 19, 1979
Description: Another casualty of the heavy rain that fell in Menard County last week was a Chicago & Northwestern freight train that derailed near the Hubly Crossing early Thursday morning, April 12. Hubly crossing is located in the extreme northeastern corner of Menard County, about five miles southeast of Mason City. Picture is of a wrecked car with a section of the track that was torn up in the derailment.
Source: Athens Public Library

File Name:TrainDerail_MasonCity_1979_3
Event: Train Derailed
Date: April 19, 1979
Description: Another casualty of the heavy rain that fell in Menard County last week was a Chicago & Northwestern freight train that derailed near the Hubly Crossing early Thursday morning, April 12. Hubly crossing is located in the extreme northeastern corner of Menard County, about five miles southeast of Mason City. Picture shows some of the wrecked cars, with flood waters still filling a low place along the west side of the tracks.
Source: Athens Public Library

Appendix E: Historical Hazard Map

-See Attached Document

Appendix F: Critical Facilities List

Communication Facilities Report

ID	Name	Address	City	Class	Owner	Function	ReplaCost
1	WPES764	1 MI E OF ROGGE RD 1000 E DIERS	PETERS	CDFLT	AG PLUS		0
2	WPES764		PETERS	CDFLT	AG PLUS		0
3	WQJW716	DOUGLAS ST & W CITY LIMIT	PETERS	CDFLT	Ameren Services		0
4	KSF521	DOUGLAS ST AND WEST CITY LIMITS	PETERS	CDFLT	Ameren Services		0
5	KSI33	DOUGLAS ST & W CITY LIMITS	PETERS	CDFLT	Ameren Services		0
6	WQIV687	3.7 MI N of RT 97 on CR800N	Atterberr	CDFLT	Ameren Services		0
7	WPLG560	400 E HARGRAVE ST	ATHENS	CDFLT	ATHENS FANCY		0
8	WPLG560		ATHENS	CDFLT	ATHENS FANCY		0
9	KNNL979			CDFLT	ATHENS, CITY OF		0
10	WPMP523	105 E JACKSON	ATHENS	CDFLT	ATHENS, CITY OF		0
11	WPMP523		ATHENS	CDFLT	ATHENS, CITY OF		0
12	WNCY360	3.5 MI SE	PETERS	CDFLT	BAUM, GEORGE P		0
13	WNCY360		PETERS	CDFLT	BAUM, GEORGE P		0
14	WNFA953	BLAINE ST	GREENV	CDFLT	BRANDT		0
15	WNFA953		GREENV	CDFLT	BRANDT		0
16	KNNV410	100 MAIN ST	CULVER	CDFLT	CENTRAL		0
17	KNNV410		CULVER	CDFLT	CENTRAL		0
18	WQAV579	Main Office, Harris Road	Athens	CDFLT	City of Athens		0
19	WNCB366	RT 29 N	GREENV	CDFLT	CROP		0
20	WNCB366		GREENV	CDFLT	CROP		0
21	KIR422	RT 2 1 MI E	GREENV	CDFLT	EASTVIEW		0

ID	Name	Address	City	Class	Owner	Function	ReplaCost
22	KIR422		GREENV	CDFLT	EASTVIEW		0
23	KZX272	VILLAGE SQ W SIDE	GREENV	CDFLT	GREENVIEW		0
24	KZX272		GREENV	CDFLT	GREENVIEW		0
25	KTH997	SOUTH END OF CLEVELAND STREET	GREENV	CDFLT	GREENVIEW		0
26	KTH997		GREENV	CDFLT	GREENVIEW		0
27	WNIA801	ONE MI E ON RT 123	PETERS	CDFLT	GROSBOLL, JOHN		0
28	WNIA801		PETERS	CDFLT	GROSBOLL, JOHN		0
29	WNBV764	IL 97 1/8 MI NW	PETERS	CDFLT	GUMS DISPOSAL		0
30	WNBV764		PETERS	CDFLT	GUMS DISPOSAL		0
31	KNFZ944	2 MI W NEWMANSVILLE 8 MI E	PETERS	CDFLT	HINRICHS,		0
32	WPCP365	LOCATED IN THE CENTER OF	PETERS	CDFLT	HOLLIDAY,		0
33	WPCP365		PETERS	CDFLT	HOLLIDAY,		0
34	WPVY497	RT 123 .5 MI E OF CITY LIMITS	PETERS	CDFLT	HOLLIDAY,		0
35	WPVY497		PETERS	CDFLT	HOLLIDAY,		0
36	WQBB433	106 East Ayers Street	Tallula	CDFLT	I-WARN, Inc. /		0
37	WQBB433		Tallula	CDFLT	I-WARN, Inc. /		0
38	KBE990	MENARD ELECTRIC COOP 0.5 MI E	PETERS	CDFLT	ILLINOIS AND		0
39	KNKA630	Located at the intersection of Route 123	Tallula	CDFLT	Illinois SMSA		0
40	KNKA630	19600 Sunny Acres Road	Petersbur	CDFLT	Illinois SMSA		0
41	WQCF927	3.7 MI N OF RT 97 ON CR800N	ATTERB	CDFLT	ILLINOIS, STATE		0
42	WQCF927		ATTERB	CDFLT	ILLINOIS, STATE		0
43	KNAP825	1/2 MI W OF 5 POINT BLACKTOP ON	PETERS	CDFLT	JURGENS,		0
44	KNAP825		PETERS	CDFLT	JURGENS,		0

ID	Name	Address	City	Class	Owner	Function	ReplaCost	
45	WLJ734	HWY 97 & COAL MINE RD.	PETERS	CDFLT	LONG NINE, INC.		0	
46	WQFY215	18349 STATE HIGHWAY 29	PETERS	CDFLT	MAGELLAN		0	
47	WQFY215		PETERS	CDFLT	MAGELLAN		0	
48	WQEG305		PETERS	CDFLT	MENARD		0	
49	WQFZ345	130 EAST WOOD	OAKFORD		CDFLT		MENARD	0
50	WQFZ345	530 WEST WASHINGTON	PETERS	CDFLT	MENARD		0	
51	WQFZ345	105 VINEYARD HILLS RD	PETERS	CDFLT	MENARD		0	
52	WPUG837	4TH & CONCORDE	PETERS	CDFLT	MENARD		0	
53	WPUG837		PETERS	CDFLT	MENARD		0	
54	KNFL340	.5 MI E CITY LIMITS RT 123	PETERS	CDFLT	MENARD		0	
55	KNFL340		PETERS	CDFLT	MENARD		0	
56	WNTB901	APPROX 1.5 MI E	PETERS	CDFLT	MENARD		0	
57	WQCP341	RT 123 .5 MI E OF CITY LIMITS	PETERS	CDFLT	MENARD		0	
58	KBG372	RT 123 1/2 MI E OF CITY LIMITS	PETERS	CDFLT	MENARD		0	
59	KBG372		PETERS	CDFLT	MENARD		0	
60	WPUS637		Petersbur	CDFLT	Menard Rural		0	
61	KNGG604	522 W WASHINGTON ST	PETERS	CDFLT	MENARD,		0	
62	WPQZ702	1/4 MI E OF THE SR 97 AND COAL	PETERS	CDFLT	MENARD,		0	
63	WQB723	BEHIND 522 W WASHINGTON	PETERS	CDFLT	MENARD,		0	
64	WQB723		PETERS	CDFLT	MENARD,		0	
65	WQBD562	2 KM NORTH OF COURTHOUSE	PETERS	CDFLT	MENARD,		0	
66	WQBD562		PETERS	CDFLT	MENARD,		0	
67	WQBD562	130 EAST WOOD ST	OAKFORD		CDFLT		MENARD,	0

ID	Name	Address	City	Class	Owner	Function	ReplaCost
68	WQBD562		OAKFORD		CDFLT		MENARD, 0
69	WNUW924	100 MAIN ST	CULVER	CDFLT	MONTGOMERY,		0
70	WNUW924		CULVER	CDFLT	MONTGOMERY,		0
71	KNKA747	3.7MI NORTH OF ROUTE 97 ON	PETERS	CDFLT	NEW CINGULAR		0
72	WQBZ878	1073 SR 123	PETERS	CDFLT	NEXTEL WIP		0
73	WQBZ878		PETERS	CDFLT	NEXTEL WIP		0
74	WQJZ633	MONROE STREET	GREENV	CDFLT	Novariant, Inc.		0
75	WQJZ633		GREENV	CDFLT	Novariant, Inc.		0
76	WPUC412	16033 SOUTH, 94TH AVE.	ORLAND	CDFLT	ORLAND HILLS,		0
77	WPUC412		ORLAND	CDFLT	ORLAND HILLS,		0
78	WQFB918		PETERS	CDFLT	PETERSBORO,		0
79	WNAP497	522 W WASHINGTON	PETERS	CDFLT	PETERSBURG,		0
80	WNAP497		PETERS	CDFLT	PETERSBURG,		0
81	KAG909	3.6 MI 3.7 MI E	GREENV	CDFLT	PORK VALLEY		0
82	KSZ708	LINCOLN TRAIL RD 1/5 MI W	ATHENS	CDFLT	PORT, ALAN J		0
83	WQJB928	105 VINEYARD HILLS ROAD	PETERS	CDFLT	PORTA C.U.S.D.		0
84	WNYZ395	CORNER OF JELLEYSTONE RD &	PETERS	CDFLT	POWER, J W		0
85	WNYZ395		PETERS	CDFLT	POWER, J W		0
86	KNIB840	RT 123 2 MI E	PETERS	CDFLT	REBBE, ROBERT		0
87	KNIB840		PETERS	CDFLT	REBBE, ROBERT		0
88	WNYT820	1 MI N ON IL 97	PETERS	CDFLT	State of Illinois,		0
89	KNJB875	6 MI SW ON CR	GREENV	CDFLT	TODD, JAMES H		0
90	KNJB875		GREENV	CDFLT	TODD, JAMES H		0

ID	Name	Address	City	Class	Owner	Function	ReplaCost
91	WNCL887	SWEETWATER RD 1 MI E	SWEET	CDFLT	UNION PACIFIC		0
92	WNJR409	MP124.2 PEORIA SUB	SWEET	CDFLT	UNION PACIFIC		0
93	WQIE820		Athens	CDFLT	Veloxinet, Inc.		0
94	WQHI286	18480 STATE HWY 97	PETERS	CDFLT	WANKEL FARMS		0
95	WQHI286		PETERS	CDFLT	WANKEL FARMS		0
96	KJG557	1/2 MI E OF CITY LIMITS ON RT 123	PETERS	CDFLT	WANKEL, MARK		0
97	KNEL470	MAIN ST	FANCY	CDFLT	WEIDHUNER		0
98	KNAM924	2.5 MI E	TALLULA	CDFLT	WINKELMANN,		0
99	KNAM924	4.5 MI E 1.5 MI N	TALLULA	CDFLT	WINKELMANN,		0
100	KNAM924		TALLULA	CDFLT	WINKELMANN,		0
101	KNFJ903	RT 123 2 MI E	PETERS	CDFLT	WINKELMANN,		

Potable Water Facilities Report

ID	Name	Address	City	Class	Function	Stories	YearBuilt	ReplaCost
1	ATHENS WTP	13904 HARRIS ROAD	ATHENS					36963
2	GREENVIEW WTP	23510 ALTIG BRIDGE ROAD	GREENVIEW					36963
3	TALLULA WTP	13684 BOY SCOUT TRAIL	PETERSBURG					36963
4	PETERSBURG WTP	17347 ALTIG BRIDGE AVE	PETERSBURG					36963

WasteWater Facilities Report

ID	Name	Address	City	Function	Class	Stories	YearBuilt	ReplaCost
1	ATHENS STP	WEST EUREKA STREET	ATHENS		WDF			73926
2	PETERSBURG STP	EAST ROUTE 123	PETERSBURG		WDF			73926
3	TALLULA STP	WEST AYERS STREET	TALLULA		WDF			73926

EOC Facilities Report

ID	Name	Address	City	Class	YearBuilt	ShelterCap	Stories	ReplaCost
3	MENARD COUNTY	809 OLD SALEM RD	PETERSBURG	EFEO				
4	MENARD COUNTY 911	315 S 6TH ST	PETERSBURG	EFEO				

User Defined Facilities Report

ID	Name	Address	City	Class	Function	Stories	YearBuilt	ReplaCost
27	GREENVIEW VILLAGE HALL	145 E ADAMS ST	GREENVIEW	GOV				
28	OAKFORD VILLAGE HALL	100 W CENTER ST	OAKFORD	GOV				

29	TALLULA VILLAGE HALL	105 W MAIN ST	TALLULA	GOV		
31	MENARD COUNTY RESCUE	210 Sixth Street	PETERSBURG	GOV		
32	ATHENS CITY HALL (NEW)	210 Dottie Bednarko Road	ATHENS	GOV		2010
26	MENARD COUNTY	102 S 6TH ST	PETERSBURG	GOV		

Hazardous Materials

ID	Name	Address	City	Class	EPAID	ChemicalName
47	BRANDT CONSOLIDATED INC	24079 STATE HIGHWAY 97	OAKFORD	HDFLT		AG CHEMICALS
48	OAKFORD HICKSGAS	24079 STATE HIGHWAY 97	OAKFORD	HDFLT		AG CHEMICALS
49	BRANDT CONSOLIDATED INC	225 E MADISON ST	GREENVIEW	HDFLT		AG CHEMICALS
50	LINCOLN LAND FS	24580 JELLYSTONE AVE	GREENVIEW	HDFLT		AG CHEMICALS
51	CROP PRODUCTIN SERVICES	23436 ST HWY 29	GREENVIEW	HDFLT		AG CHEMICALS
52	GROWMARK PIPELINE	18349 STATE HWY 29	GREENVIEW	HDFLT		HAZ MAT
53	LINCOLN LAND FS	15995 DIERKS AVE	PETERSBURG	HDFLT		AG CHEMICALS
46	CROFT FERTILIZER	31590 CROFT AVE	ATHENS	HDFLT		FERTILIZER

Police Station Facilities Report

ID	Name	Address	City	Class	Stories	ShelterCap	YearBuilt	ReplaCost
2	Petersburg Police Dept/City Hall	122 S 6th St	Petersburg	EFPS				1554
3	Athens Police Dept/Old City Hall	106 E Jackson	Athens	EFPS				1554
4	Greenview City Police Dept	109 N Engle St	Greenview	EFPS				1554
5	Menard County Sheriff	315 S 6th St	Petersburg	EFPS				1554

Medical Care Facilities Report

ID	Name	Address	City	Class	Function	Beds	Stories	ReplaCost
6	Menard Convalescent	120 W Antle St	Petersburg	MDFLT	NursHome	86		
7	Sunny Acres Nursing	19130 Sunny Acres Rd	Petersburg	MDFLT	NursHome	106		
8	Countryside Estates	19080 Sunny Acres Rd	Petersurg	MDFLT	AstdLiving	21		

School Facilities Report

ID	Name	Address	City	Class	Students	Stories	YearBuilt	ReplaCost
2	GREENVIEW K-12	147 PALMER ST	GREENVIEW	EFS1	129			1585.3463
3	SALT CREEK ACADEMY	30819 FANCY PRAIRIE RD	ATHENS	EFS1	29			498.9539
5	ATHENS JR/SR HIGH	1 WARRIOR WAY	ATHENS	EFS1	174			2566.0489
6	PETERSBURG ELEM	514 W MONROE ST	PETERSBURG	EFS1	237			2912.6129
7	PORTA JR/SR HIGH	17651 BLUEJAY RD	PETERSBURG	EFS1	455			7828.4154
9	PORTA CENTRAL	1500 OWEN AVE	PETERSBURG	EFS1	300			4291.4955
10	TALLULA ELEM SCHOOL	N ELM ST	TALLULA	EFS1	109			1339.5562

Dams Report

ID	Name	River	City	Owner	Purpose	Height (ft)	ReplaCost
1	LAKE PETERSBURG DAM	TRIB SANGAMON RIVER	PETERSBUR	Lake Petersburg	R	85	
2	COUNTRY LAKE DAM	HALLS BRANCH	SPRINGFIEL	Country Lake	R	39	
3	MCMANN LAKE DAM	TRIB PIKE CREEK	LINCOLN	Gene McMann	R	19	

FireStation Facilities Report

ID	Name	Address	City	Class	Stories	YearBuilt	ReplaCost
1	Athens Volunteer Fire	402 E Hargrave ST	Athens	EFFS			
2	Petersburg Fire Department	310 E Taylor St	Petersburg	EFFS			
3	Tallula Fire Dept.	300 N Elm ST	Tallula	EFFS			
4	Oakford Fire Protection	Illinois 97	Oakford	EFFS			
5	Fancy Prairie Fire Protection	30854 Fancy Prairie Ave	Athens	EFFS			
6	Greenview Fire Protection	130 N Engle St	Greenview	EFFS			

Appendix G: Critical Facilities Map

-See Attached Map.

Appendix H: Flow Data for Menard County

Appendix I: Letter from The Army Corps of Engineers

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

JUN 0 5 2010

Emergency Management Division

Mr. Larry A. Barrett
South Sangamon Drainage & Levee District West
Commissioner/Chairman
82 Almond Lane
Petersburg, Illinois 62675

Dear Mr. Barrett:

This letter is in reference to the South Sangamon Drainage & Levee District West Continuing Eligibility Inspection performed on March 31, 2010. During this inspection, it was determined that the maintenance condition of your levee system is considered **Unacceptable** as defined by Public Law (PL) 84-99 project maintenance standards. The enclosed report, photographs, and drawings provide details of the inspection results.

This inspection rating is attributed to ongoing maintenance deficiencies that have not been corrected. These maintenance deficiencies include no gravity drain inspection report or flood response plan, reduced levee cross section where gravity drains have been removed on the levee and unacceptable vegetation growth within the vegetation free zone. Public Law 84-99 inspection program guidelines specify that deficiencies must be corrected within two years of identification. These items were identified in previous inspection reports and have not been repaired; therefore, the system's overall inspection rating is unacceptable.

With this letter, I regret to inform you that your flood protection system is considered inactive in the U.S. Army Corps of Engineers Rehabilitation and Inspection Program. Your flood protection system is no longer eligible for repair assistance under Public Law 84-99.

If, in the future, you wish to be reconsidered for our Rehabilitation and Inspection Program, you must repair all deficiencies listed in the most recent "Flood Damage Reduction Segment System Inspection Report." Also, it will be necessary to obtain an "A" rating for all rated items in the inspection report that pertain to your levee system. Acceptable rating standards for all rated items can be located under the rating guidelines column within the report.

To be eligible for the Rehabilitation and Inspection Program once again, you must complete all actions in the above paragraph. Once you have completed these actions, you may request readmission into the Corps inspection program. This will require a written letter to the Corps of Engineers, Rock Island District stating that you have repaired all known deficiencies; your levee system is able to obtain an "A" rating for all rated items; and you wish to be considered active in the inspection program. Subsequent to receipt of such request, we will inspect your levee system. Pending successful inspection, your levee system will again be considered active in the PL 84-99 Rehabilitation and Inspection Program.

We are willing to meet with you at your convenience to discuss repair strategies and assist you with any efforts you may have to reinstate your PL 84-99 inspection program eligibility.

A copy of this letter and report has been furnished to the individuals and offices provided below:

Mr. David Sandidge
Commissioner
23650 Oakford Road
Chandlerville, Illinois 62627

Mr. Jerry Brooks
Commissioner/Secretary
30212 Oakford Road
Chandlerville, Illinois 62627

✓ Mr. Larry Graf
Menard County ESDA Director
809 Old Salem Road
Petersburg, Illinois 61675

Mr. Ron Davis
IL Hazard Mitigation Office
1035 Outer Park Drive 2nd Flr
Springfield, Illinois 62704

Mr. Joseph G. Klinger
Interim Director
Illinois Emergency Management Agency
2200 South Dirksen Parkway
Springfield, Illinois 62703

Ms. Janet M. Odeshoo
Acting Regional Administrator
FEMA
500 C Street SW
Washington, DC 20472

Honorable Aaron Schock
Representative in Congress
2322 South Darst
Peoria, Illinois 61607

Mr. Arlan Juhl
Illinois DNR
One Natural Resources Way
Springfield, Illinois 62702

If you have any questions please contact my office at (309)794-5230, or e-mail me at: Rodney.L.Delp@usace.army.mil.

Sincerely,

ORIGINAL SIGNED BY

Shawn P. McGinley
Colonel, US Army
Commander & District Engineer